Modular Reconfigurable C4I Interface (MRCI) Phase 1

System Requirements Review

SRR Agenda (1 of 4)

Time	Subject
0730-0745	Welcome and Introductions
0745-0805	Summaries of Primary MRCI Experiment System Candidates
0805-0815	Summaries of Primary MRCI Experiment Communications Links Candidates
0815-0825	Orientation to OSI Reference Model
0825-0855	US Army C4I-to-Simulation Requirements
0855-0915	USAF C4I-to-Simulation Requirements
0915-0930	Other General C4I-to-Simulation Requirements
0930-0945	Break

SRR Agenda (2 of 4)

Time	Subject
0945-1030	MRCI Command & Control Transaction Requirements
1030-1100	MRCI Information Transaction Requirements
1100-1130	MRCI Data Transaction Requirements
1130-1145	MRCI Communications Emulation Requirements
1145-1200	Break
1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
1245-1300	Discussion & Wrap Up
1300	Adjourn Peer Review Team Session

SRR Agenda (3 of 4)

Time	Subject
1330-1345	Welcome and Introductions
1345-1400	Summaries of Primary MRCI Experiment System Candidates
1400-1410	Summaries of Primary MRCI Experiment Communications Links Candidates
1410-1415	Orientation to OSI Reference Model
1415-1445	US Army C4I-to-Simulation Requirements
1445-1505	USAF C4I-to-Simulation Requirements
1505-1515	Other General C4I-to-Simulation Requirements
1515-1530	Break

SRR Agenda (4 of 4)

Time	Subject
1530-1615	MRCI Command & Control Transaction Requirements
1615-1630	MRCI Information Transaction Requirements
1630-1700	MRCI Data Transaction Requirements
1700-1715	MRCI Communications Emulation Requirements
1715-1730	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
1730	Adjourn C4I Systems, Simulation Programs and Simulation Centers Session

SRR Agenda (1 of 4)

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Background and Objectives of MRCI

- This section provided under separate cover by DMSO and presented by Lt. Col Mark Jefferson, DMSO.

Objectives of the MRCI SRR

- This section provided under separate cover by NRaD and presented by Mr. Tom Tiernan, NRaD.

SRR Agenda (1 of 4)

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Summaries of Primary MRCI Experiment System Candidates

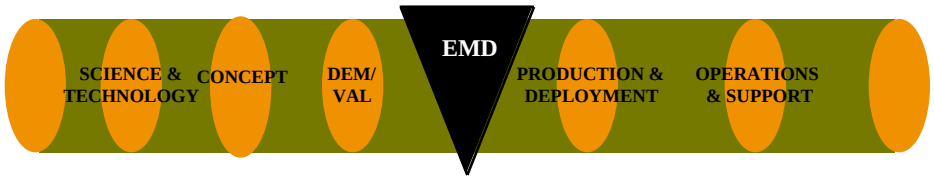
» **Command, Control, Communications, Computers & Intelligence (C4I) Systems:**

- Advanced Field Artillery Tactical Data System (AFATDS)
- Contingency Theater Automated Planning System (CTAPS)
- Forward Area Air Defense Command, Control and Intelligence (FAADC2I)
- Maneuver Control System (MCS)

» **Simulation Systems**

- Air Warfare Simulation/Re-engineered (AWSIM/R)
- Corps Battle Simulation (CBS)

Advanced Field Artillery Tactical Data System



MISSION: The AFATDS provides the multiservice (Army/Marine Corps) automated Fire Support Command, Control, and Coordination portion of the Army Battle Command System (ABCS) and supports the close and deep battle.

CHARACTERISTICS: The AFATDS will provide integrated, automated support for planning, coordinating and controlling all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopter, and offensive electronic warfare) and for executing counterfire, interdiction, and suppression of enemy targets for close and deep operations. The AFATDS will receive the Air Tasking Order from CTAPS and automatically process it for use in fire support operations. The AFATDS uses non-developmental, ruggedized, Common Hardware/Software (CHS) including Common Operating Environment/Global Command and Control System. The AFATDS software is being developed in modular, object-oriented Ada computer code. Each successive version implements additional functionality and interoperability. The system will fully automate 321 fire support tasks.

FOREIGN COUNTERPART: AFATDS will continue to improve interoperability with United Kingdom, French, and German Fire Support Systems.

PROGRAM STATUS: Version 1 detailed design, coding, integration and testing are completed. Version 1 Initial Operational Test and Evaluation (IOTE) was conducted with the 1st Cavalry Division in 4QFY95. Version 2 development is ongoing. Milestone III occurred in 1QFY96.

PROJECTED ACTIVITIES: Began fielding units 2QFY96.

Participate in Task Force XXI.

Version 2 Software Acceptance Testing - 1997.

PRIME CONTRACTOR: Magnavox (Ft. Wayne, IN)

Advanced Field Artillery Tactical Data System

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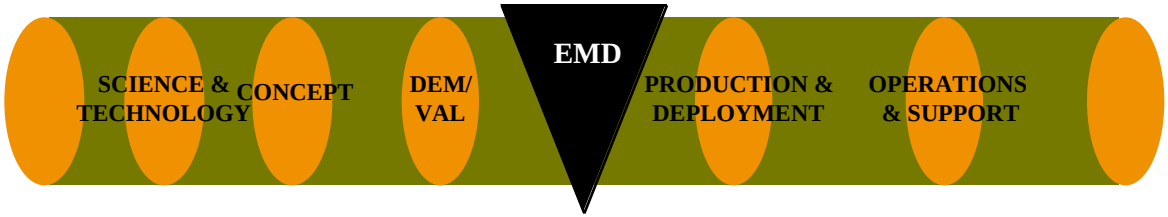
Advanced Field Artillery Tactical Data System



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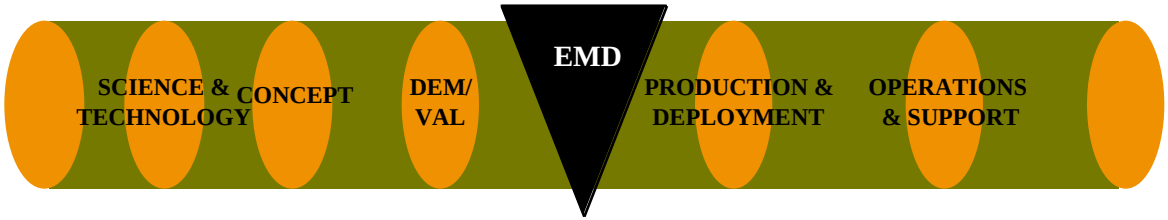

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Representative AFATDS Deployment Configuration

Contingency Theater Automated Planning System

MISSION: CTAPS is a force-level C4I system used by the Joint Forces Air Component Commander (JFACC) and his battle staff to plan, execute, and monitor air campaign operations.

CHARACTERISTICS: CTAPS functions support: air battle planning; airspace planning and management; air tasking order (ATO) production, dissemination and execution monitoring; intelligence fusion and order of battle management; targeting and weaponeering; route/penetration analysis and electronic combat planning; weather constraint analysis; and unit-to-force force level reporting

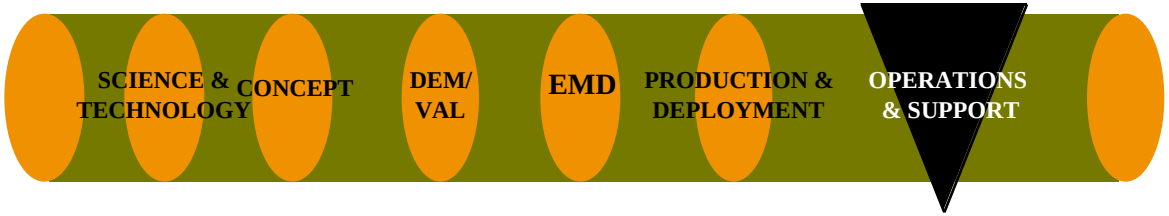
FOREIGN COUNTERPART: CTAPS 5.2N, the NATO releasable version, has been fielded. However, NATO has also identified the need for its own air command and control system commonly referred to as NATO ACCS.

PROGRAM STATUS: CTAPS 5.2 is programmed for August 1996 release.

PROJECTED ACTIVITIES: The Theater Battle Management Core Systems (TBMCS) program will integrate the functionality of CTAPS and other C4I systems into a common operating environment (COE) over the next 5 years.

PRIME CONTRACTOR: Lockheed-Martin, Loral

Contingency Theater Automated Planning System



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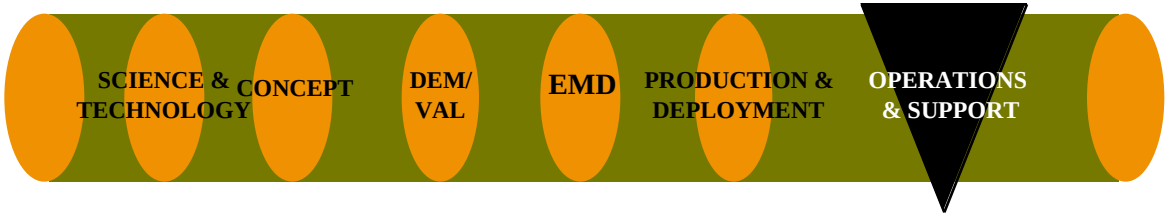
Contingency Theater Automated Planning System



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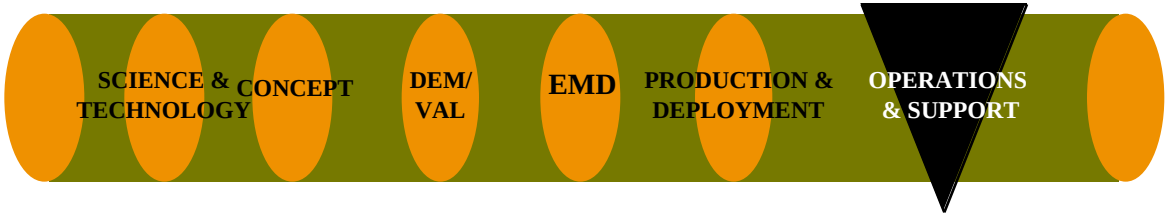
Contingency Theater Automated Planning System

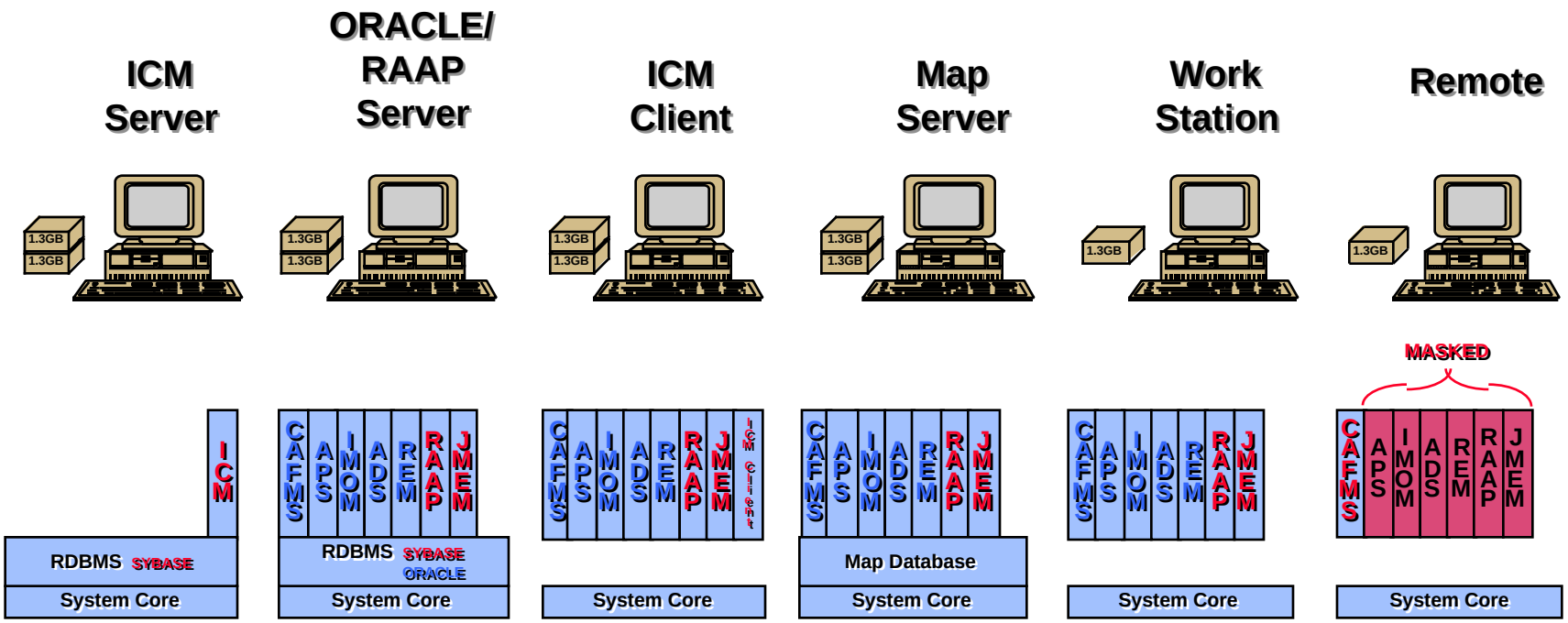


PROGRAM STATUS:

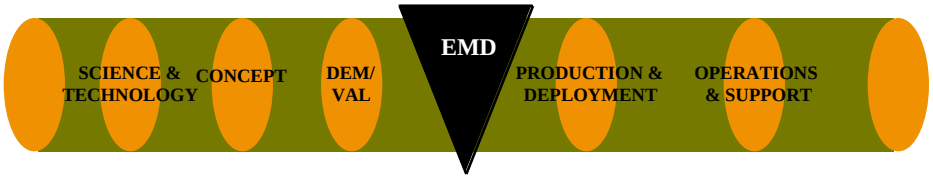
CTAPS 5.2 is programmed for August 1996 release.

Representative CTAPS Configuration

Software Distribution



Forward Area Air Defense Command, Control, & Intelligence



MISSION: The FAADC^{2}I provides an automated means of providing timely target data to FAAD weapons, to protect friendly aircraft, and to facilitate management of the air battle.

CHARACTERISTICS: FAADC^{2}I consists of non-developmental computers, displays, printers, communication systems that are common to the Army Battle Command System (ABCS), non-developmental ground sensors and the requisite software that enhance the execution of air defense engagement operations (EO) and force operations (FO). FAADC^{2}I integrates air defense fire units, sensors, liaison elements, and command posts into a synergistic system capable of defeating and denying the aerial threat. It provides the automated interface (Division and below) for the Air Defense component to the ABCS and allows the commanders and staffs to communicate, plan, coordinate, and control the counter-air fight. FAADC^{2}I is capable of collecting, storing, processing, displaying and disseminating situational awareness (air and ground), targeting data, and battle command information throughout FAAD units and from other ADA, Army, Joint, and Combined elements. FAADC^{2}I enhances the ability of commanders, staff, and weapon system operators to visualize battlespace, realize situational awareness, defeat the enemy, and synchronize operations with the supported unit.

FOREIGN COUNTERPART: No known foreign counterpart.

PROGRAM STATUS: The FAADC^{2}I system is currently in the Engineering and Manufacturing Development and Production phases. The basic effort consists primarily of software development, which is being developed incrementally. Block I successfully completed all contractor and government testing, reflects an Initial Operational Capability (IOC), and was fielded to the Light and Special Army Divisions beginning in 4QFY93. Block II completed all government testing, will be fielded to Heavy/Mechanized Army Divisions, and builds on the basic capabilities of Block I by improving the FAAD Sensor and Sensor Command and Control Subsystem, as well as establishing additional internal and external EO interfaces.

Forward Area Air Defense Command, Control, & Intelligence

PROGRAM STATUS Cont: Block III (Objective, 3QFY99) enhances interoperability, both vertically and horizontally, provides automated staff workstations and netted FAAD sensors to achieve the correlated (Joint/HIMAD/ Local/Adjacent FAAD/Precise Participant Location and Identification) air picture with target data being provided down to the fire unit via EPLRS/SINCGARS simulcast. Block IV (FY00+) provides for EO and FO preplanned product improvements. It is currently envisioned that the FAADC^{2}I system will be fielded to all active component FAAD units, selected ARNG FAAD units and the training base.

PROJECTED ACTIVITIES: Complete fielding (Block II) to 1st Cavalry Division in 3QFY96.

PRIME CONTRACTOR: TRW Inc. (Redondo Beach, CA)

Forward Area Air Defense Command, Control, & Intelligence

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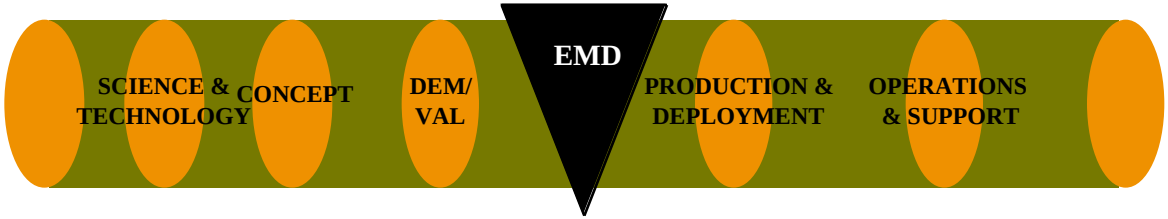
Forward Area Air Defense Command, Control, & Intelligence



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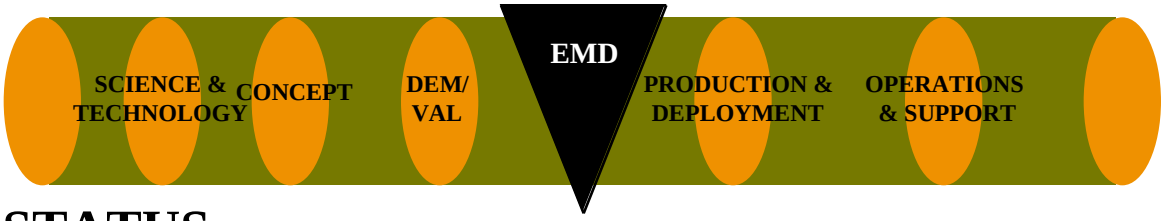
Forward Area Air Defense Command, Control, & Intelligence



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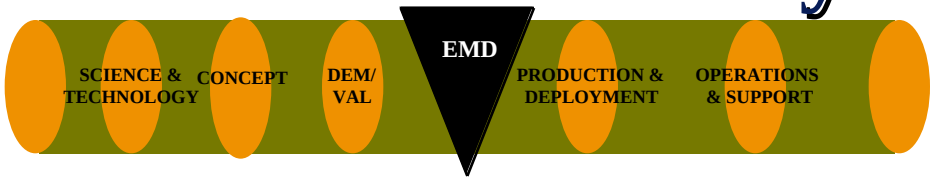
Representative FAAD C2I Deployment Configuration

Maneuver Control System



MISSION:

MCS provides Army tactical commanders and their staffs (corps through battalion) automated, on-line, near-real-time systems for planning, coordinating, and controlling tactical operations. It automates the creation and distribution of the common picture of the battlefield for the Army Battle Command System (ABCS).

CHARACTERISTICS:

MCS provides automated command and control (C2) for the Force Level Commander. It integrates information from other BFA C2 systems to provide timely accurate status of battle information. V 12 of MCS will provide the initial implementation of the Common Operating Environment (COE) and evolution to the Army Battle Command System. MCS will be fielded on CHS-2 hardware and will implement a client/server architecture.

FOREIGN COUNTERPART:

No known foreign counterpart.

PROGRAM STATUS:

Currently, MCS Version 10.03.1G software is fielded to all heavy Army units with Non-Developmental Item equipment.

PROJECTED ACTIVITIES:

MCSV.12.01 Software Initial Operational Test and Evaluation (IOTE) is scheduled for November 1996.

Block IV Development Contract Award scheduled 4QFY96.

Participate in Task Force XXI 2QFY97.

Fielding MCS 12.01 with CHS-2 scheduled to begin in FY98.

PRIME CONTRACTOR:

Block IV contractor--TBD

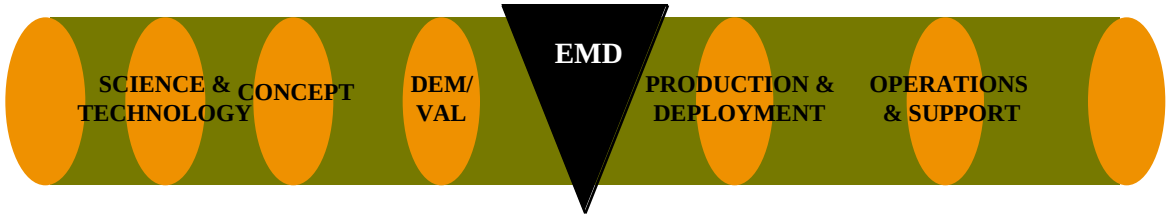
Mitre (Eatontown, NJ)

GTE (Taunton, MA)

ESC (Eatontown, NJ)

GTE (Telos) (Shrewsbury, NJ)

Maneuver Control System



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Maneuver Control System

PROGRAM STATUS:

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Representative MCS Deployment Configuration

AWSIM/R - Air Warfare Simulation/Reengineered

Purpose:

AWSIM/R is designed to help train senior commanders and their battle staffs in the execution of wartime air operations that emphasize joint and combined operations. The model is used for team skills development and as a nonscripted command post exercise driver.

Description:

Force Composition: Joint and Combined forces, BLUE and RED.

Scope of Conflict: Conventional warfare. Simulation can include virtually all air conventional weapons and surface-to-air weapons.

Level of Detail of Processes and Entities: Can issue orders to flights of aircraft. Results include single aircraft kills. Munitions and fuel consumption are modeled with high resolution.

Users: All NATO military commands, Joint Exercises, NAF, Blue Flag, Warrior Prep Center, Germany.

CBS - Corps Battle Simulation

Purpose:

CBS is the Corps/Division command staff trainer in the Army Family of Simulations (FAMSIM). Its primary use is a CPX driver. It is used by the Battle Command Training Program (BCTP) and by the Corps to train Corp, Division, and Brigade staffs. CBS is also used by BCTP as a seminar trainer.

Description:

Force Composition: Combined land and air forces.

Scope of Conflict: Both BLUE and RED conventional, chemical, rear-area, deep and nuclear play.

Level of Detail of Processes and Entities: Ground representation generally to battalion level, but, specialized units at platoon level and below. Air units to individual aircraft. Indirect fire is explicit. Air defense is modeled. Terrain effects and congestion affect ground movement.

Users:I, III, V, XVII Corps, NSC, BCTP, CENTCOM, Korea, and USACGSC

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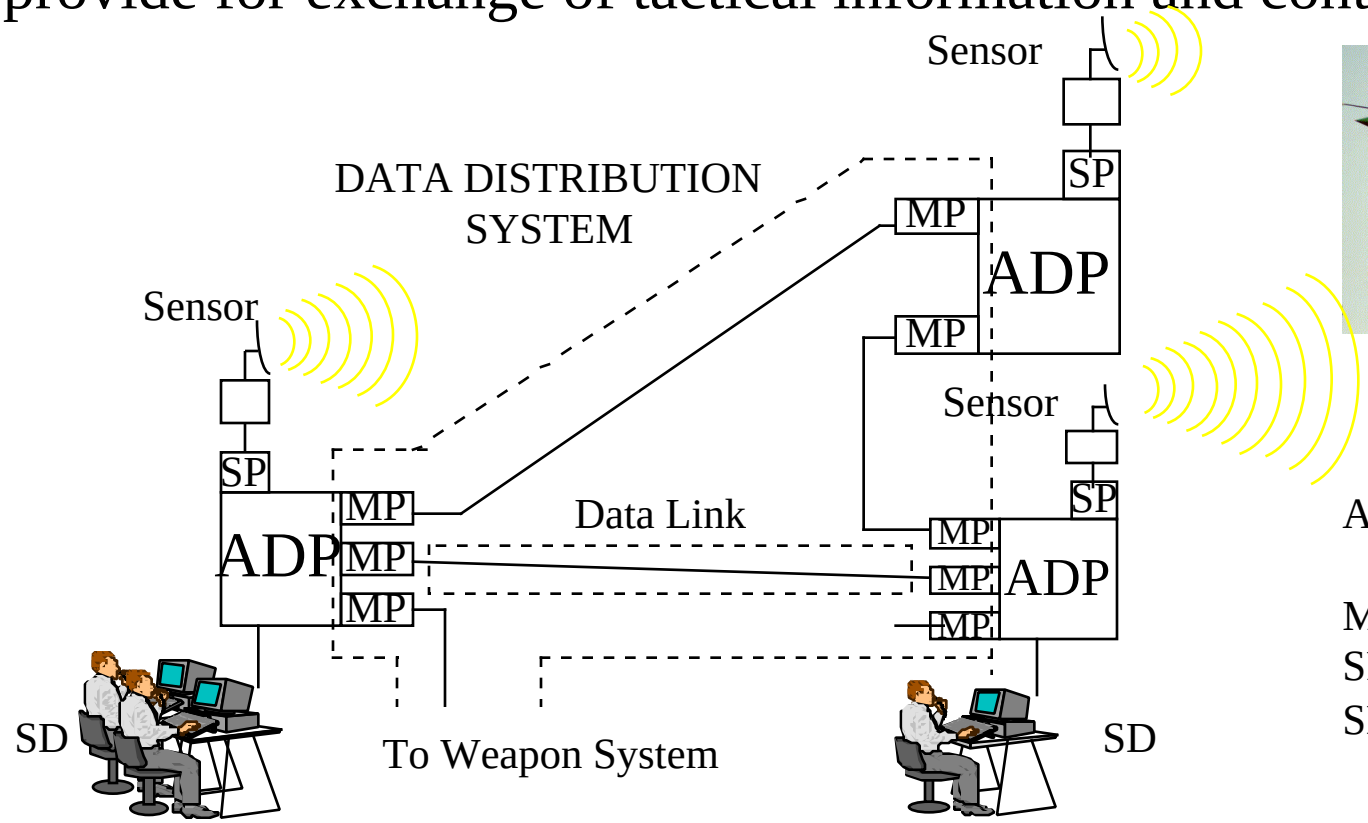
Summaries of Primary MRCI Experiment Communications Links

- TADIL A
- TADIL B
- TADIL J (Link 16)
- JTIDS

TADIL System

Tactical Digital Information Links (TADILs) represent a system concept including the equipment, protocols, and standards designed to provide for exchange of tactical information and control assets.



ADP: Automated Data Processing
MP: Message Processor
SP: Sensor Processor
SD: Situation Display

Data Link Summary Matrix

U.S. DESIGNATION	NATO DESIGNATION	PROTOCOL	DATA CAPACITY	TRANSMISSION	USERS
TADIL A	LINK 11	HALF-DUPLEX	136bps(HF) 2240bps (UHF)	HF Radio UHF LOS Radio	Navy, Marine Corps, Air Force, NATO
TADIL B	NO NATO EQUIVALENT	FULL-DUPLEX	1200bps/ 600bps	HF Radio UHF LOS Radio UHF Tropo Radio	Marine Corps, Army, Air Force
TADIL C	LINK 4A	SIMPLEX OR HALF-DUPLEX	5000bps	UHF LOS Radio Landline	Navy, Marine Corps, Army, Air Force
TADIL J	LINK 16	HALF-DUPLEX	30-240kbps	UHF Lx Radio	Navy, Marine Corps, Army, Air Force, NATO

Data Link Summary Matrix

U.S. DESIGNATION	NATO DESIGNATION	LINK TYPE	PROTOCOL	DATA CAPACITY	MESSAGE TYPE	TRANSMISSION	USERS	INFORMATION CARRIED
TADIL A	Link 11	Netted (Many-to-Many)	Half-duplex	1364bps(HF) 2240bps (UHF)	M-series	HF Radio UHF LOS Radio	Navy, Marine Corps, Air force, NATO	Target, Nav/time, Environment, Targeting, Weapons Control, Performance/ status
TADIL B	NO NATO Equivalent	Point-to-Point	Full-duplex	1200/600bps	M-sries	HF Radio UHF LOS Radio UHF Tropo Radio	Marine Corps, Army, Air Force	Surveillance & Track, Performance/ status
TADIL C	Link 4A	Netted (One-to-Many and Many-to-One)	Simplex or Half-duplex	5000bps	V-series & R-series	UHF LOS Radio Landline	Navy Marine Corps, Air Force	Aircraft control, Target, Performance/ status, Nav/time, Environment
TADIL J	Link 16	Netted (One-to Many)	Half-duplex	30-240kbps	J-series	UHF Lx Radio	Navy, Marine Corps, Army, Air Force NATO	Target, Nav/time Environ, Targeting, Weapons control, Performance/ status, EW, Track
OTCIXS	No NATO Equivalent	Netted (One-to-Many)	Half-duplex	2400bps	Not Identified	UHF or SHF Satellite	Navy	Targeting Mission Control, Warfare plans, Force orders and alerts
TADIXS A	No NATO Equivalent	Point-to-Point	Simplex	2400bps	Formatted and Non-formatted	UHF or SHF Satellite	Navy	Track, Threat alerts, Ocean Surveillance products
ATDL-1	No NATO Equivalent	Point-to-Point	Full-duplex	1200bps	B-series	UHF LOS Radio	Army	Surveillance, Management, Weapons control
MBDL	No NATO Equivalent	Point-to-Point	Full-duplex	750bps	Not Identified	UHF LOS Radio	NATO	Surveillance, Management, Weapons control
No U.S Equivalent	Link 1	Point-to-Point	Full-duplex	1200/600bps	S-series	UHF LOS Radio UHF Tropo Radio Landline	Marine Corps, Army, NATO	Surveillance, Management, Status

TADIL A (Link 11) Specifications

- Half-Duplex
- Asynchronous Polling Protocol
- 2240bps (UHF) 1364bps (HF) Capacity
- QPSK
- Time Multiplexed
- BER of not more than $1x10^{-3}$
- EDAC -- Hamming Code

TADIL A (Link 11) Users/ Information

DMSO

USERS

- C2 and SAM systems (oceanborne, airborne, and fixed land sites)
  - NAVY (NTDS, ATDS)
  - Marine Corps(TACC, TAOC)
  - Air Force (E-3, MPC, CRC, CRP)
  - NATO (Maritime Only)

INFORMATION

- Tactical and C2 data

-Combat Info -Weapons control

-Performance/ -Target data

status data -Environment

-Surveillance & -Management data

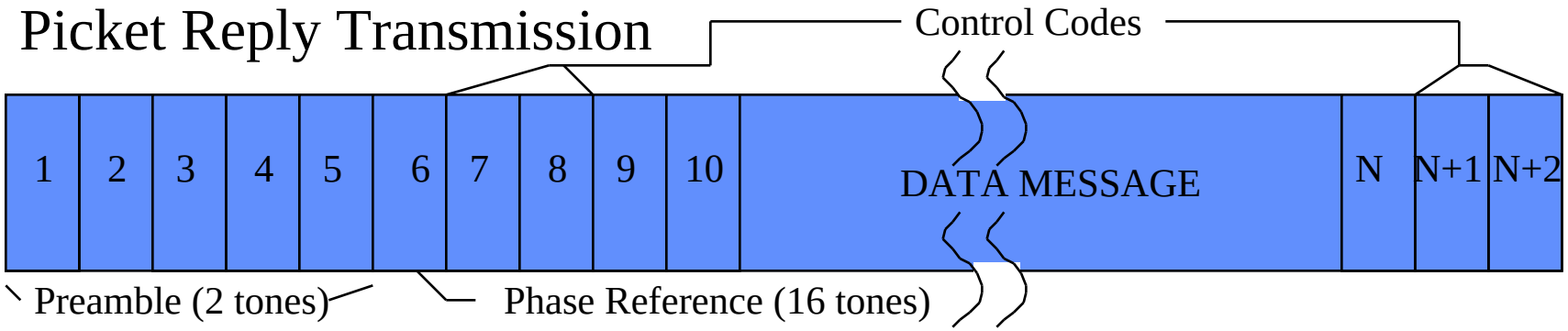
Track data -Targeting data

-Navigation/time data

-Force Orders & Alerts

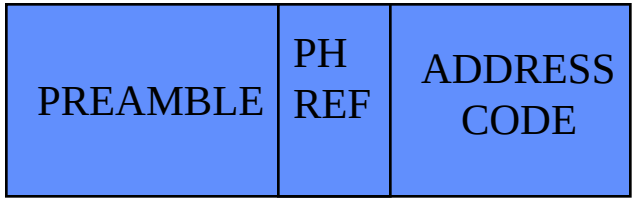
TADIL A (Link 11) Frame Formats

Picket Reply Transmission



Data Net Control Station (DNCS) Transmission with Data

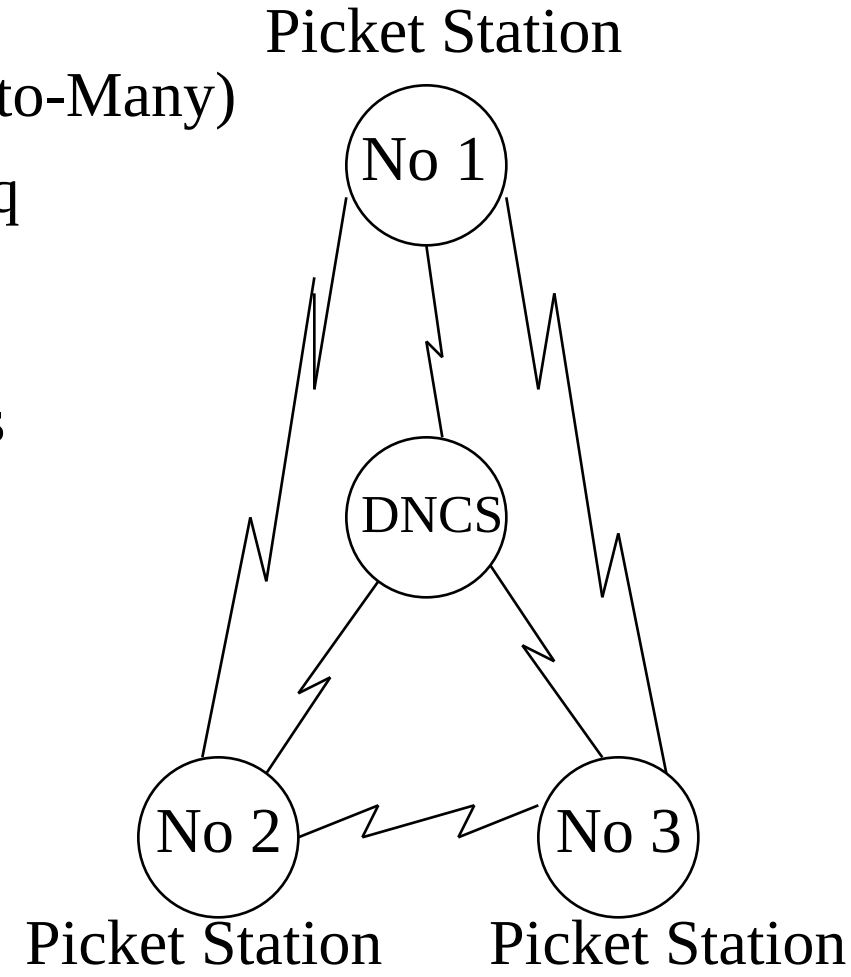
DNCS Transmission without Data



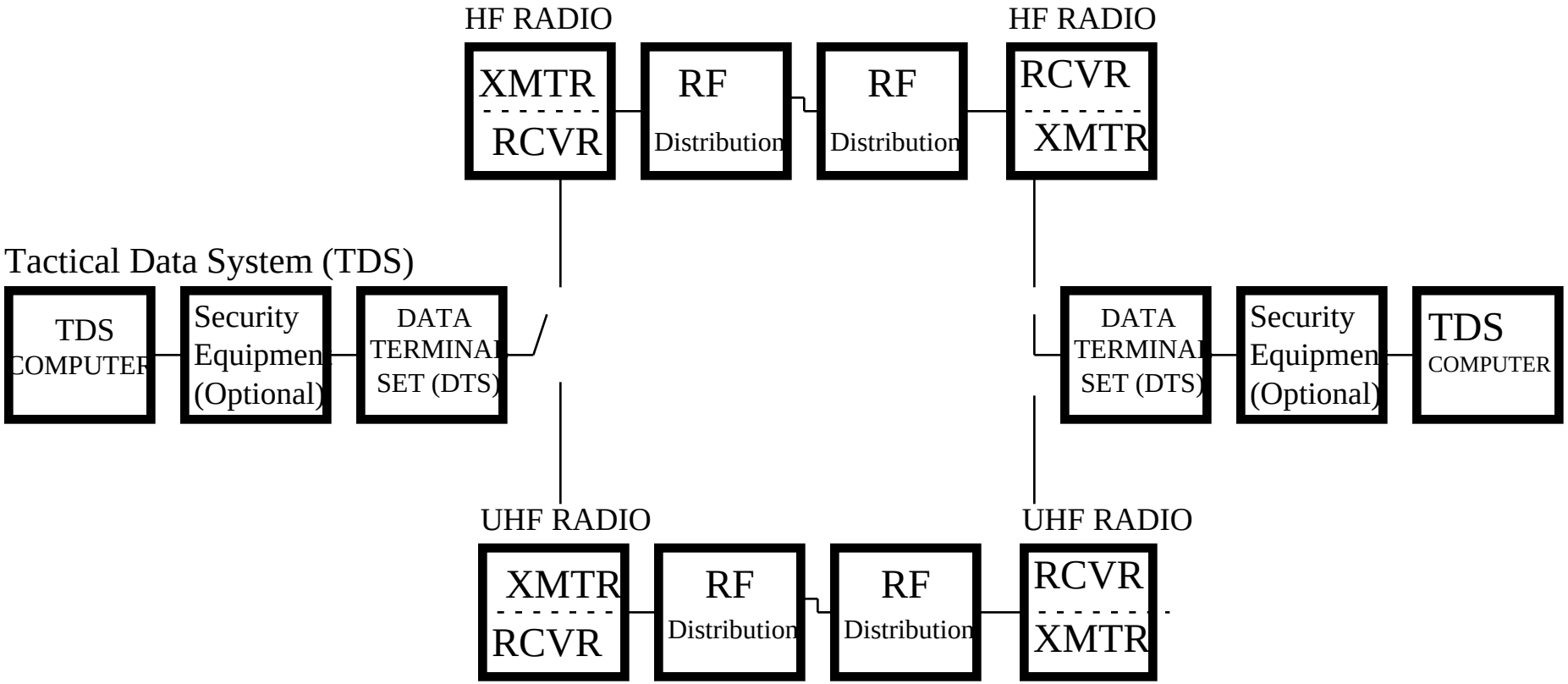
Representative TADIL A Net

Automatic Netted Data (Many-to-Many)

- Each Station Monitors Freq for Transmissions
- Data Net Control Station controls Net Transmissions
- Picket Stations are Subordinate Stations
- Number of Active Stations depends on number of unique address codes (62) available



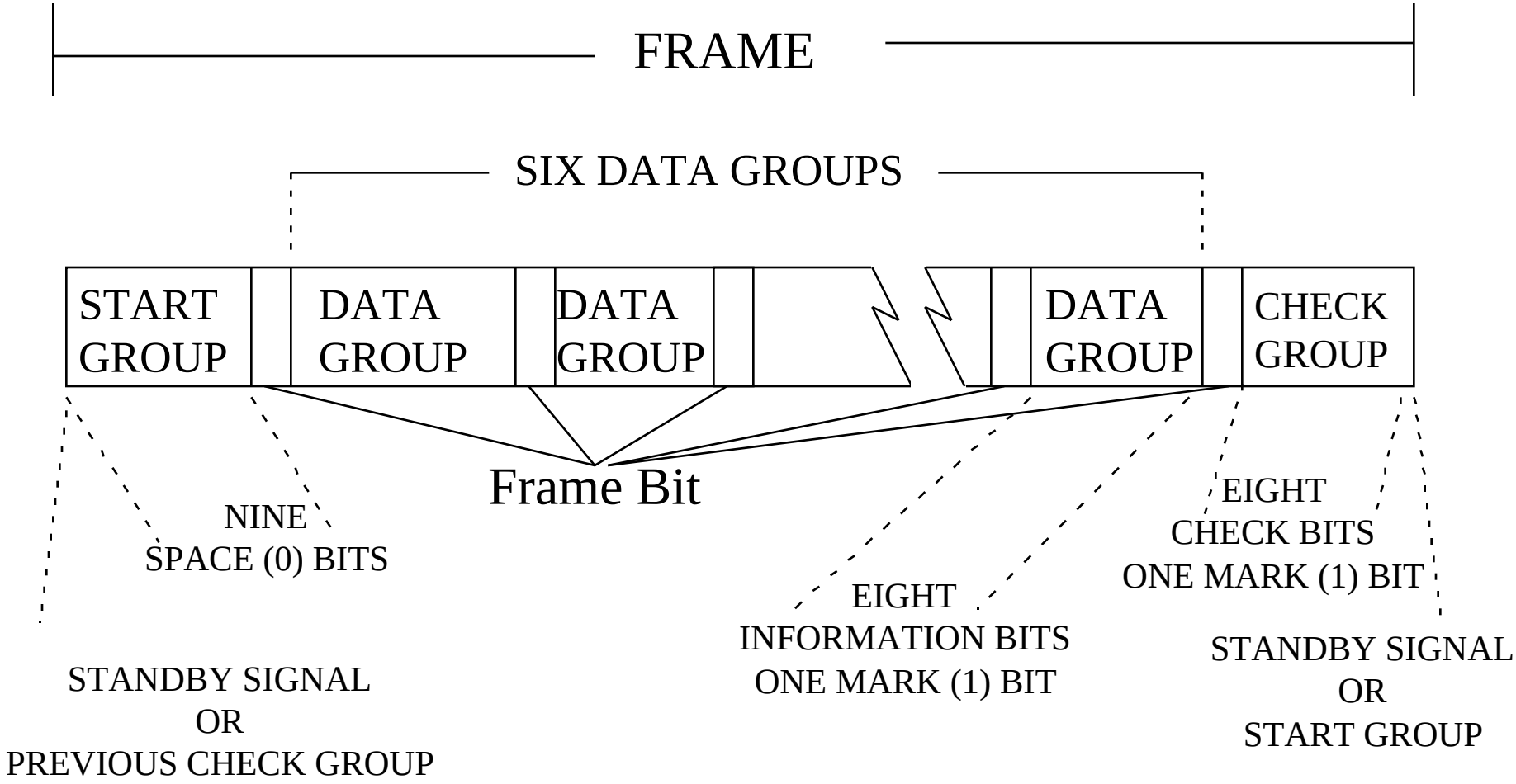
TADIL A (Link 11) System



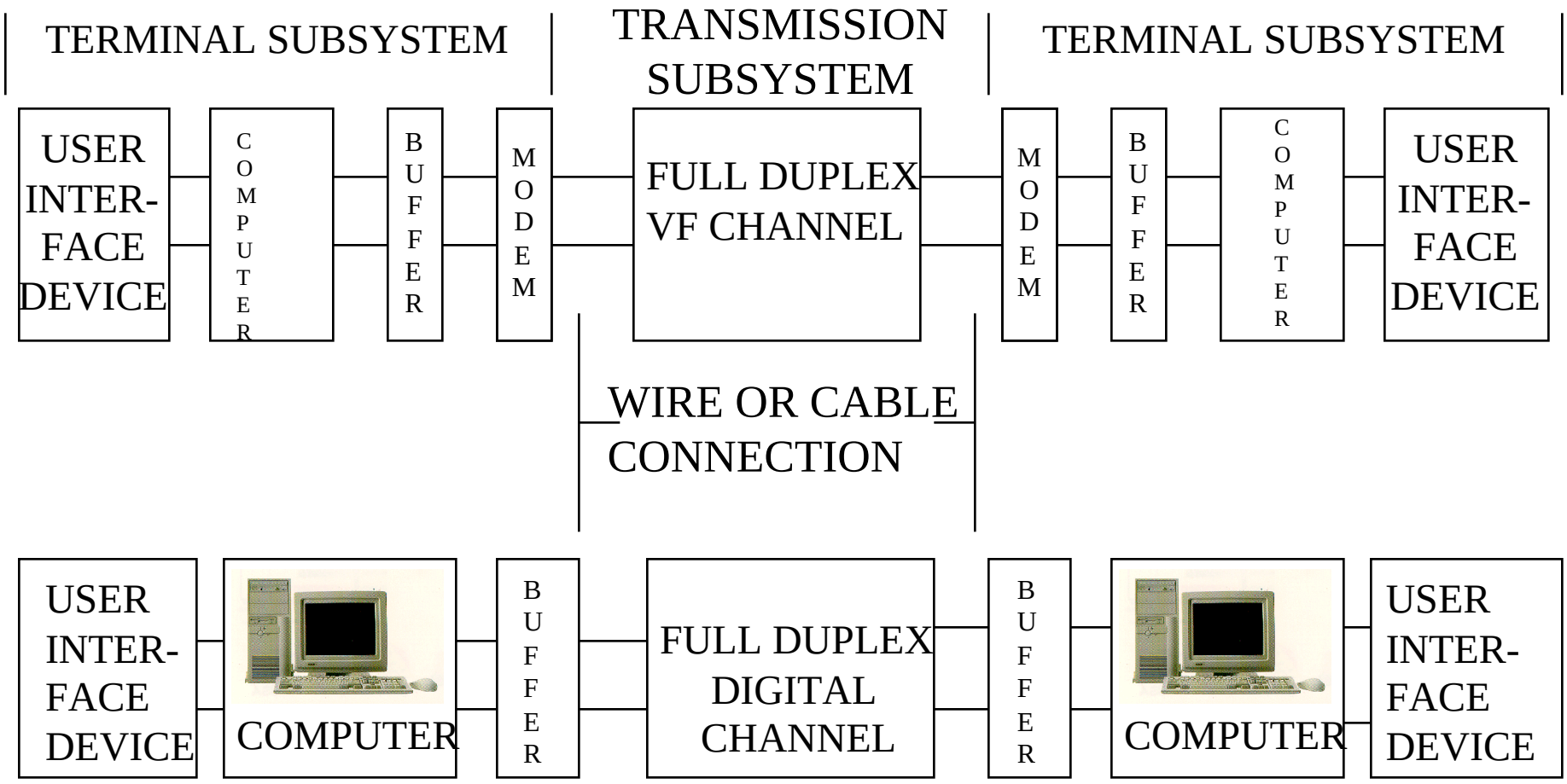
TADIL B Specifications

- Full-duplex
- Point-to-Point
- 1200/600bps (HF) Capacity
- BFSK
- FDM or TDM
- Transmission Subsystem BER $1x10^{-5}$

TADIL B Format



TADIL B System

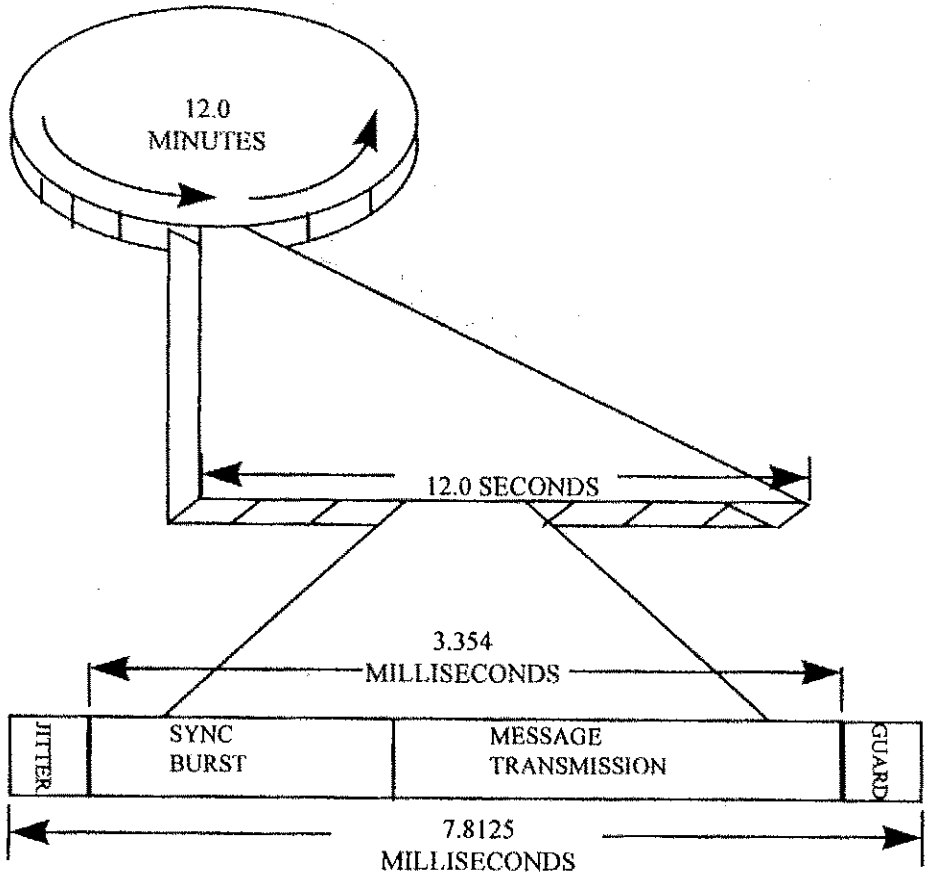


TADIL J Specifications

- Half-duplex
- Synchronous, Time Division Protocol
- UHF L band
- 28.8-238 kbps (TDMA) Capacity
- CPSK (continuous phase-shift keying)
- Frequency Hopping
- Spread Spectrum

TADIL J (Link 16) Format

TADIL J.



JTIDS/TADIL J

SRR Agenda (1 of 4)

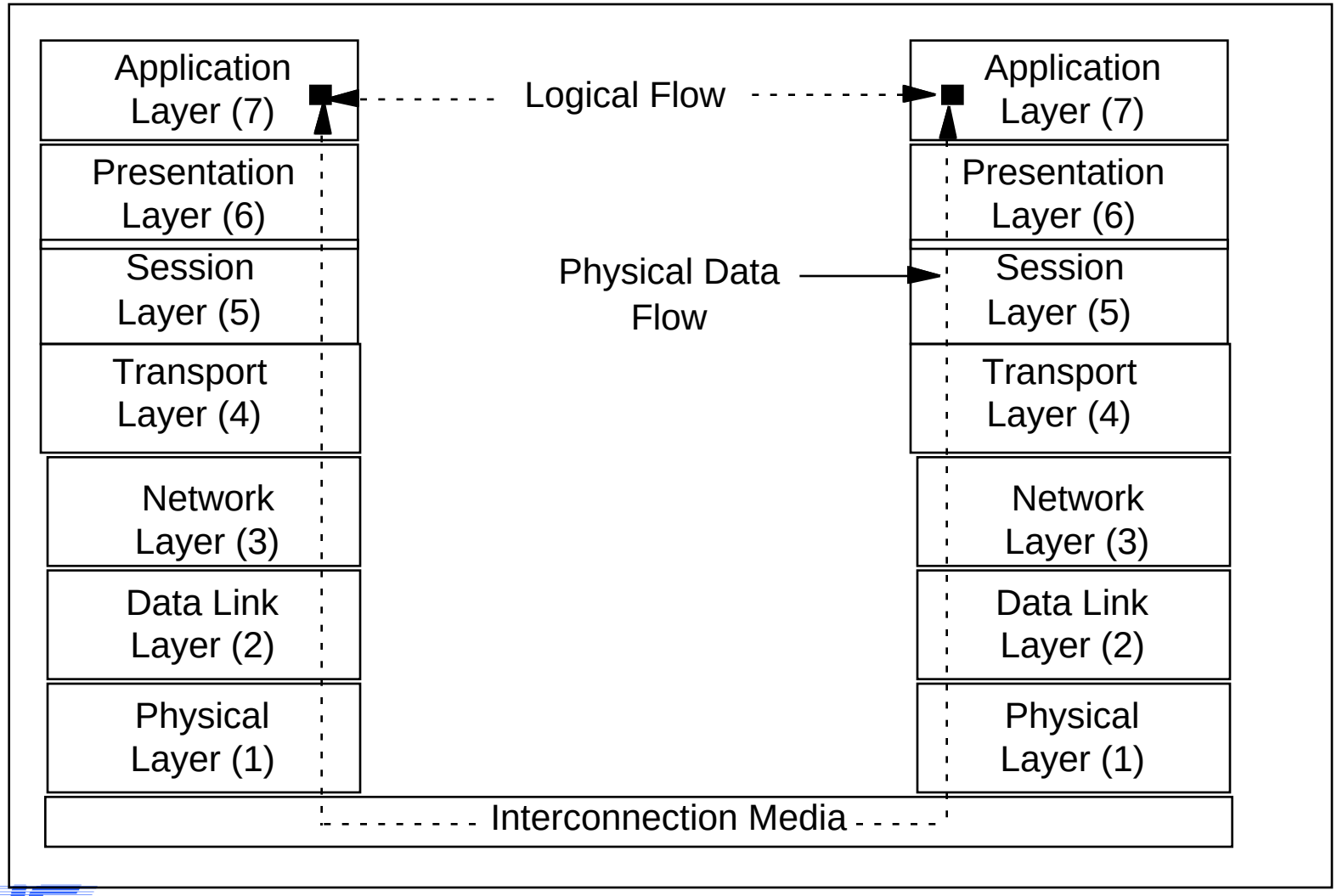
	Time	Subject
	0730-0745	Welcome and Introductions
	0745-0805	Summaries of Primary MRCI Experiment System Candidates
	0805-0815	Summaries of Primary MRCI Experiment Communications Links Candidates
☛	0815-0825	Orientation to OSI Reference Model
	0825-0855	US Army C4I-to-Simulation Requirements
	0855-0915	USAF C4I-to-Simulation Requirements
	0915-0930	Other General C4I-to-Simulation Requirements
	0930-0945	Break

The Open Systems Interconnection Reference Model

OSI Reference Model:

The design of a computer network consists of different layers or levels. Each layer is built upon its predecessor and is responsible to provide services to the higher layers in a manner transparent to the higher layers. Different networks may have a different number of layers or different functions within the layers. In 1984, the OSI Reference Model was adopted by the International Organization for Standardization (ISO) as a model of a computer communications architecture. The model is "Open" because it refers to systems that are open for communication with other systems. The OSI Reference Model is shown on the following slide.

Open Systems Interconnection Reference Model



Functions of OSI Layers

LAYER	FUNCTION
1-Physical	Concerns the transmission of an unstructured bit stream over a physical medium; deals with the mechanical, electrical, functional, and procedural characteristics to access the physical medium.
2-Data Link	Provides for the reliable transfer of information across the physical link; sends blocks of data (frames) with the necessary synchronization, error control and flow control.
3-Network	Provides upper layers with independence from the data transmission and switching technologies used to connect systems; responsible for establishing, maintaining and terminating connections.
4-Transportation	Provides reliable, transparent transfer of data endpoints; provides end-to-end error recovery and flow control.

Functions of OSI Layers

LAYER	FUNCTION
5-Session	Provides the control structure for communication between applications; establishes, manages and terminates connections (sessions) between cooperating applications.
6-Presentation	Provides independence to the application processes from differences in data representation (syntax).
7-Application	Provides access to the OSI environment for users and also provides distributed information services.

SRR Agenda (1 of 4)

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US Army Requirements

- This section provided under separate cover and presented by Mr. Joe Henry.

SRR Agenda (1 of 4)

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USAF Requirements

- This section provided under separate cover and presented by Mr. Dan Sandini.

SRR Agenda (1 of 4)

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	0930-0945	Break

Other General C4I-to-Simulation Requirements

- This section of the SRR reserved for requirements, of a general nature, expected by other near term users of the MRCI.
- In the absence of additional inputs SAIC will present the general MRCI technical infrastructure and operational requirements at this time.

General MRCI Technical and Operational Requirements (1 of 13)

1. MRCI execution should be transparent to the user and non-intrusive to the C4I system during setup and use.
2. MRCI shall be able to operate in real time and/or at a speed which results in the perception of real time (perceptible real time) to the C4I system using the MRCI. MRCI must not preclude or inhibit the use of time management schemes supported by the RTI.
3. MRCI shall operate with dynamic changes in C4I systems task organization and in all mission threads (e.g. planning through BDA and replanning to retasking).
4. MRCI shall operate during, and recover from, system failures on either its RTI or live C4I side.
5. MRCI shall support C4I systems representing echelons above Corps to platform level, e.g. infantryman operating autonomously.

General MRCI Technical and Operational Requirements (2 of 13)

6. MRCI shall not restrict the HLA Federation operations with respect to security level.
7. MRCI operation shall not be constrained by data, information or C2 formats and shall not introduce additional layers of complexity to the simulation interfaces to the RTI.
8. MRCI shall be able to go to war and operate across operational warfighting networks.
9. MRCI shall support bi-directional interactions between C4I systems and the HLA-based Federation.
10. MRCI shall comply with the five Federation and five Federate rules of the HLA.

10.1 Federations must have an HLA Federation Object Model (FOM), documented using the HLA OMT.

General MRCI Technical and Operational Requirements (3 of 13)

10.2 In a federation, all object representation (ownership or reflection) occurs in the federates, not in the runtime infrastructure (RTI).

10.3 During a federation execution, data exchange (attribute values and interactions) among instances of objects defined in the FOM represented (owned or reflected) in different federates occurs via the RTI).

10.4 During a federation execution, federates must interact with the runtime infrastructure (RTI) in accordance with the HLA interface specification.

10.5 During a federation execution, an attribute of an instance of an object can be owned by only one federate at any given time.

10.6 Federates must have an HLA Simulation Object Model (SOM) documented using the HLA OMT.

General MRCI Technical and Operational Requirements (4 of 13)

10.7 Federates must be able to publish/reflect any attributes of objects in their SOM and exercise SOM object interactions externally.

10.8 Federates must be able to own or reflect attributes and to transfer/accept ownership of attributes dynamically during a federation execution, as specified in their SOM.

10.9 Federates must be able to vary the conditions (e.g. thresholds) under which they provide updates of public attributes of objects according to their SOM.

10.10 Federates must be able to manage local time in a way which will allow them to coordinate data exchange with other members of a federation in accordance with at least one HLA time management service.

General MRCI Technical and Operational Requirements (5 of 13)

11. MRCI must facilitate interoperation with an HLA federation using all five RTI service categories. i.e. Federation Management, Time Management, Object Management, Ownership Management and Declaration Management.
12. MRCI shall provide the throughput and transport capabilities to facilitate the rapid exchange and synchronization of C4I and Simulation databases (database reconciliation) as executed by the future HLA exercise generation components.
13. MRCI shall facilitate the collection of both FOM and non-FOM data as defined within the C4I system SOM.
14. MRCI shall facilitate the establishment of an application-to-application session between the RTI and the C4I system.

General MRCI Technical and Operational Requirements (6 of 13)

15. MRCI shall provide a mechanism for resynchronization with C4I systems following degraded operations (e.g. tactical picture re-establishment).
16. MRCI shall be GCCS DII COE compliant. See following viewgraphs for compliance categories and compliance levels within categories. Degree and extent of compliance will be presented at PDR.
17. MRCI applications shall be fully interoperable with Ada 95.
18. MRCI shall support next generation releases of C4I system software (e.g. MCS/P Baseline Build V, Block III; AFATDS V1.0.06).
19. The MRCI/C4I SOM shall support FOMs produced for STOW demonstrations and exercises which include CBS, OpenSAF, EADSIM participation and entity-level interactions.

DII COE Compliance (1 of 3)

Compliance Principles

Full COE compliance embodies the following principles:

1. All segments shall comply with the guidelines, specifications, and standards defined in this document and related documents such as the *Style Guide*.
2.. All software and data shall be structured in segment format.
3. All segments shall be registered and submitted to the on-line library.

DII COE Compliance (2 of 3)

Full COE compliance embodies the following principles (cont.):

4. All segments shall be validated with the VerifySeg tool prior to submission, and shall successfully pass the VerifySeg tool with no errors. An annotated listing of the VerifySeg tool output shall be submitted with each segment release.
5. All segments shall be loaded and tested in the COE environment prior to submission. Segment developers are responsible for testing their segment within the full COE, but there is no requirement to include mission application segments for which there is no dependency.
6. All segments shall fully specify dependencies and required resources through the appropriate segment descriptors.

DII COE Compliance (3 of 3)

Full COE compliance embodies the following principles (cont.):

7. All segments shall be designed to be removable, and tested to confirm that they can be successfully removed from the system.
8. All segments shall access COE components only through the published APIs, and segments shall not duplicate functionality contained within the COE.
9. No segment shall modify the environment or any files it does not own except through environment extension files or through use of the installation tools provided by the COE.

DII COE Compliance Issues
Compliance Categories (1 of 2)

- **Category 1: Runtime Environment (RTE).** This category measures how well the proposed software fits within the COE executing environment, and the degree to which the software reuses COE components. It is an assessment of whether or not the software will "run" when loaded on a COE platform, and whether or not it will interfere with other segments.
- **Category 2: Style Guide:** This category measures how well the proposed software operates from a "look and feel" perspective. It is an assessment of how consistent the overall system will appear to the end user. It is important that the resulting COE-based system appear seamless and consistent to minimize training and maintenance costs.

DII COE Compliance Issues
Compliance Categories (2 of 2)

- **Category 3: Architectural Compatibility.** This category measures how well the proposed software fits within the COE architecture (client/server architecture, DCE infrastructure, desktop, etc.). It is an assessment of the software's potential longevity as the COE evolves. It does *not* imply that all software must be client/server and RPC (Remote Procedure Call) based. It simply means that a reasonable design choice has been made given that the COE is client/server based and is built on top of a DCE (Distributed Computing Environment) infrastructure.
- **Category 4: Software Quality.** This category measures traditional software metrics (lines of code, McCabe complexity metric, etc). It is an assessment of program risk and software maturity.

RTE Compliance Levels (1 of 3)

- Level 1: Standards Compliance Level. A superficial level in which the proposed capabilities share only a common set of COTS standards. Sharing of data is undisciplined and minimal software reuse exists beyond the COTS. Level 1 may allow simultaneous execution of the two systems.
- Level 2: Network Compliance Level. Two capabilities coexist on the same LAN but on different CPUs. Limited data sharing is possible. If common user interface standards are used, applications on the LAN may have a common appearance to the user.
- Level 3: Workstation Compliance Level. Environmental conflicts have been resolved so that two applications may reside on the same LAN, share data, and coexist on the same workstation as COE-based software. The kernel COE, or its equivalent, must reside on the workstation. Segmenting may not have been performed, but some COE components may be reused. Applications do not use the COE services and are not necessarily interoperable.

RTE Compliance Levels (2 of 3)

- Level 4: Bootstrap Compliance Level. All applications are in segment format and share the bootstrap COE. Segment formatting allows automatic checking for certain types of application conflicts. Use of COE services is not achieved and users may require separate login accounts to switch between applications.
- Level 5: Minimal COE Compliance Level. All segments share the same kernel COE, and functionality is available via the Executive Manager. Boot, background, and local processes are specified through the appropriate segment descriptor files. Segments are registered and available through the on-line library. Applications appear integrated to the user, but there may be duplication of functionality and interoperability is not guaranteed. Segments may be successfully installed and removed through the COE installation tools.
- Level 6: Intermediate COE Compliance Level. Segments utilize existing account groups, and reuse one or more COE component segments. Minor documented differences may exist between the *Style Guide* and the segment's GUI implementation.

RTE Compliance Levels (3 of 3)

- Level 7: Interoperable Compliance Level. Segments reuse COE component segments to ensure interoperability. These include COE provided comms interfaces, message parsers, database tables, track data elements, and logistics services. All access is through published APIs with documented use of few, if any, private APIs. Segments do not duplicate any functionality contained in COE component segments.
- Level 8: Full COE Compliance Level. Proposed new functionality is completely integrated into the system (e.g., makes maximum possible use of COE services) and is available via the Executive Manager. The segment is fully compliant with the Style Guide and uses only published public APIs. The segment does not duplicate any functionality contained elsewhere in the system whether as part of the COE or as part of another mission application segment.

General MRCI Technical and Operational Requirements (7 of 13)

20. To the extent practical, MRCI reconfigurable modules shall be reusable among instances of C4I-MRCI combinations.
21. MRCI shall support flow of both perceived and ground-truth data, information and C2 transactions consistent with applicable FOM and SOM definitions for Federations in which it participates.
22. MRCI design shall not be restricted by the use of legacy simulation-to-real world interface solutions.
23. MRCI design shall not be restricted by the use of alternate redundant mechanisms to the RTI.
24. MRCI shall be developed using a language for specification of formats, timing and conversion requirements of data, information and C2 interchange in clear, consistent and concise interface specifications of internal and external interfaces.

General MRCI Technical and Operational Requirements (8 of 13)

25. MRCI shall use well-defined application program interface between layers and the support services.
26. MRCI shall optimize the interdependencies between software components so that the impact of change is localized.
27. MRCI shall reduce the number of, and special training required for, system administrators, network administrators, and other exercise support personnel.
28. MRCI shall minimize life-cycle costs and be logistically supportable.
29. MRCI shall be flexible, extensible, and modifiable to capitalize on current and emerging industry accepted standards and commercially available products to the maximum extent possible to support the system requirements and to streamline upgrades.

General MRCI Technical and Operational Requirements (9 of 13)

30. MRCI shall provide sufficient flexibility, modifiability and performance to support changes and extensions to the interfaces on both the C4I and RTI sides.
31. MRCI shall execute in a distributed manner across heterogeneous platforms including current warfighting systems.
32. MRCI software shall be portable to different vendor host platforms with minimal or no modifications.
33. MRCI shall provide an experimental capability to interface AWSIM/R to TBMCS IAW the TBMCS SOM.

33.1 MRCI shall provide the capability of the current PRW and CWIC interfaces.

33.2 MRCI shall provide the capability to interface existing simulations with current and rapidly-prototyped C4I systems.

General MRCI Technical and Operational Requirements (10 of 13)

34. MRCI shall provide an experimental capability to interface NASM/AP to TBMCS.

34.1 MRCI shall provide the capability to be used with next generation simulations and the Prototype Federation products.

35. MRCI shall provide an experimental capability to interface AFSAF to TBMCS.

35.1 MRCI shall support the parsing and transmission of ATO/ACO for virtual mission planning and execution within AFSAF.

35.2 MRCI shall support operations in Federations where STOW SEID SI and OpenSAF are used IAW the appropriate FOM.

36. The design of the MRCI shall not preclude the addition of a module to support direct C4I system database access (vice message interchange) when specified in future C4I SOMs.

General MRCI Technical and Operational Requirements (11 of 13)

37. MRCI must support segregation, labeling and simultaneous existence of live and simulation data within all of its modules and in all of its outputs on both C4I and RTI sides.
38. MRCI must support the populating of messages with relatively unstructured text content to the C4I system and within the CCSIL-like message converter, while correctly maintaining the intent of such messages.
39. MRCI must support interpreting messages with relatively unstructured text content from the C4I system and within the CCSIL-like message converter, while correctly maintaining the intent of such messages.

General MRCI Technical and Operational Requirements (12 of 13)

40. MRCI must be able to scale, normalize or otherwise harmonize data and information transactions where “detail mismatches” would result in unrealistic representations of the battlespace to the C4I system.
41. MRCI must provide functionality equivalent to the STOW SSF and data collection facilities in support of STOW FOMs.
42. MRCI must maintain content integrity and conformity in all internal data-to-data/ information-to-information/ C2-to-C2 transformations.
43. MRCI must not introduce spatial or temporal inconsistencies into the C4I system’s “world view”.

General MRCI Technical and Operational Requirements (13 of 13)

- 43.1 Via the MRCI: simulated entities must be able to affect the live C4I systems and vice versa; simulated entities must also be able to control communications between live C4I systems; data, information, and C2 flow between live and simulated world shall be influenced in quantity and quality based on environment, geometric, physics and other connectivity determinants computed elsewhere in the Federation.

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☛	0930-0945	Break

SRR Agenda (2 of 4)

	Time	Subject
☛	0945-1030	MRCI Command & Control Transaction Requirements
	1030-1100	MRCI Information Transaction Requirements
	1100-1130	MRCI Data Transaction Requirements
	1130-1145	MRCI Communications Emulation Requirements
	1145-1200	Break
	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

Data Transactions

- Parameters resulting from direct observations of the battlespace, direct observations of abstractions of the battlespace, known facts, and indirect observations of the battlespace (e.g. measurements of time and space; temperature; sea state; velocity; state information unique to entities).
- A data element is the minimum content component of any exchange or transaction between HLA participants and, observed alone, it is always contextually uncorrelated within the temporal and spatial dimensions of the battlespace.

Information Transactions

- Any aggregation* of data not intended to change the course of activity of an entity within an HLA Federation.
- Importantly, aggregations of data which implicitly change the course of activity of an entity due to “a priori” defined triggers are command and control transactions.
- e.g. weather forecast; BDA; munitions report

** by interpretation or any other correlation/combinatorial mechanism*

Command and Control Transactions

- Any aggregation* of data and information explicitly intended to change the course of activity/or state of an entity within an HLA Federation.
- Any aggregation* of data and information known by the originator to implicitly change the course of activity/or state of an entity within an HLA Federation when received by said entity.

**by interpretation or any other correlation/combinatorial mechanism*

Command and Control Transaction Requirements (1 of 2)

1. MRCI C2 transactions should be unconstrained by data or information formats.
2. MRCI should use a C2 simulation interface language (CCSIL-like) to interact with C2 information within simulations e.g. data, voice, imagery.
   -- should translate CCSIL-like messages to C4I input format e.g. VMF, USMTF, TACFIRE, NATO MTF
   -- should translate C4I output format to CCSIL-like messages
3. MRCI should transmit and receive CCSIL-like messages.
4. MRCI should recognize all real-to-sim, sim-to-real, sim-to-sim, and real-to-real command and control transactions carried by the RTI, consistent with the SOM for the C4I system.

Command and Control Transaction Requirements (2 of 2)

5. MRCI shall notify the other federates of all command and control transactions associated with its SOM including real-to-real command and control transactions.
6. MRCI shall facilitate logging, affecting and routing all command and control transaction elements routed outside the RTI by the MRCI.
7. Provide the ability to associate C4I transactions with an “owning/ holding” entity and affect access to those transactions as a function of the attribute values of the entity.

Task Force XXI FATDS Message Table

Legend for Message Slides
Bold = Command and Control Transactions

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
02.1	96.72	**Check Fire**	X	X	X	X	X	X
02.2		Registration Data			X	X		
02.3		Meteorological Data		X	X	X		X
02.4	96.66	**Call For Fire**	X	X	X	X	X	X
02.5	96.28	Shell Report	X	X	X		X	
02.6	96.73	**Observer Notification**	X	X	X	X	X	X
02.7		Survey Control Point		X			X	
02.8		**Schedule of Fires**		X	X		X	
02.9		Target Data		X	X		X	X
02.10		**Planned Mission Cancel Request**						
02.11		Ammunition History		X	X	X		
02.12		**On-Call Fire Request**		X	X	X	X	X
02.13		Mission Clearance						X
02.14	96.69	**Message To Observer**	X	X	X	X	X	
02.15	96.74	FS Coordination Measures	X	X	X	X	X	

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
02.16	96.67	**End of Mission and Surveillance**	X	X	X	X	X	
02.17		Mission Summary-Indirect Fire/CAS						
02.18		Fire Unit Capabilities		X	X	X		
02.19		**ATI Query, Request for Tgt Info**						
02.20		Survey Control Point Info Request		X			X	
02.21		**Request for Clearance to Fire**						
02.22	96.75	**Subsequent Adjust**	X	X	X	X	X	X
02.23		**Execute Fire Plan**						
02.24		**In Progress Mission Notification**						
02.25		EOM Notification						
02.26	96.42	Free Text	X	X	X	X	X	X
02.27		**Tactical Air Request (TAR)**	X	X				
02.31		**Mission Request Rejection**	X	X				
02.32		**TAR Acceptance**	X	X				
02.33		**TAR Aircrew Brief**	X	X				

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
02.34		Aircraft On-Station	X	X				
02.35		Aircraft Departed IP	X	X				
02.36		Aircraft Mission Update	X	X				
02.40		**Rocket/Missile Launcher Order**						
02.41		Geographic Reference Data		X	X	X		
02.42		**Cdr's Fire Unit Guidance**		X				
02.43		**Cdr's Fire Mission Guidance**		X				
02.44		Cdr's Target Acquisition Guidance		X				X
02.45		**Howitzer Fire Orders**			X	X		
02.46		**Reply/Remarks**			X			
02.47		**Rocket/Msle Ops Status Update**		X				
02.48		**Fire Plan Assignment Data**						
02.49		Rkt/Msle Munitions Effects Data		X				
02.50	96.70	Observer Status	X	X	X	X	X	X
02.51		Unit Situation Report		X			X	

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
02.52	96.40	**Request For Information**	X	X	X	X		
02.53		Target Element Data Entry						
02.54		**Deployment Command**			X	X		
02.55		**MOI Data Exchange**			X	X		
02.56		**Fire Unit Tactical Scheduling**						
02.57	96.07	**Operations order**	X	X				
02.58		Survey Point Location Diagram						
02.59	96.27	STRIKEWARN [NUC]	X	X				
02.60	96.51	Basic Wind Report [BWR]	?	?				
02.61	96.52	Chemical Downwind Reprt [CDR]	?	?				
02.62	96.53	Effective Downwind Report [EDR]	X	X				
02.63	96.54	NBC1	X	X				
02.64	96.55	NBC2	X	X				
02.65	96.56	NBC3	X	X				
02.66	96.57	NBC4	X	X				

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
02.67	96.58	NBC5	X	X				
02.68	96.59	NBC6	?	?				
	96.01	Logistics Report	X	X				
	96.02	Personnel Status Report	X	X				
	96.03	Cache Report	?	?				
	96.04	EPW/Detainee Report	X	X				
	unk	EPW/Detainee Hand Off	?	?				
	unk	Aviation Support	?	?				
	unk	Vehicle Status Report	?	?				
	unk	Ammunition Status Report	?	?				
	unk	Fuel Status report	?	?				
	unk	Class I and Water	?	?				
	unk	Class III (Package)	?	?				
	unk	Class III (Bulk)	?	?				
	unk	Class V	?	?				

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
	unk	Maintenance Support	?	?				
	unk	Medical Information	?	?				
	unk	Personnel daily Summary	?	?				
	unk	Personnel Battle Loss Report	?	?				
	96.09	FRAME GRABBER	X	X				
05.N06	96.10	CCIR	X	X				
	96.11	Intel Overlay	?	?				
	96.12	Doctrinal Template	?	?				
	96.13	Fire Control Radar Target	?	?				
	96.25	Ops (7 Variations of SITREPs)	X	X				
	96.35	Minefield Laying	?	?				
	96.36	Overlays [6 Variations]	X	X				
	96.37	Will Comply [WILCO]	?	?				
	96.38	Bridge Reports	?	?				
04.N12	96.39	Route Reports	?	?				

Task Force XXI FATDS Message Table

(J)VMF K#	TFXXI K#	Message Name	Applique	AFATDS	BCS Cannon	Paladin	FO-CC	Firefinder
05.N07	96.41	REDCON/MOPP Status	X	X				
07.1	96.43	MEDEVAC Request	X	X				
	96.44	Obstacles	?	?				
	96.45	Air Alert	X	X				
	96.46	Warning/FRAG Order	X	X				
	96.47	Fire Plan Overlay	X	X				
	96.49	Position Report	X	X				
		Totals	39	54	23	19	16	11

Legend: (J) VMF K# - Both Joint and Fire Support (FS) Variable Message Formats (VMF)
TF XXI K# - Task ForceXXI Variable Message Formats
X = More than one source indicates that the system is to implement the message
? = Conflicting information exists as to whether a system is to implement the message
unk = Message is from Applique S/SDD, but a corresponding K# could not be found

Note: The AFATDS column has been inferred from requirement to incorporate Applique and interoperate with other fire support systems

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (1 of 40)

Legend for Message Slides
Bold = Command and Control Transactions
Italics= Information Transactions

Msg	Contains
K01.50 FREE TEXT	
8	*SYS PTM - System Plain Text Message*
13	*Free Text Message*
21	*System Plain Text Message*
24	*Free Text Message (FT)*
37	*Free Text Message*
K02.1 CHECK FIRE	
11	**COMD CC - Command Cancel Check Fire**
12	**COMD CF - Command Check Firing Message**
3012/	**FM FOCMD - Fire Mission Forward Observer Command Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (2 of 40)

Msg	Contains
3013	**FM CHECK - Fire Mission Command to Check Message**
3016	**FM CHECK - Fire Mission Command to Check Message**
3019/	**FM FOCMD - Fire Mission Forward Observer Command Message**
3031/	**FOCMD - Forward Observer Command Message**
3040/	**FM FOCMD - Fire Mission Forward Observer Command Message**
3048/	**Forward Observer Command Message**
3063	*Checkfire Message (CHKF)*
3069/	*AIR UPD - Airborne Mission Target Position Update*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (3 of 40)

Msg	Contains
3071/	**FM COMD - Fire Mission Commands Message**
KO2.2 REGISTRATION DATA	
1013	*AFU REG - Ammunition Fire Unit Fire Unit Registration Message*
1017	*AFU REG - Ammunition Fire Unit Registration Data Message*
1030	*Registration Data Input Message*
K02.3 METEOROLOGICAL DATA	
4000	*MET CM - Computer Meteorological Data Message*
4001	*MET CM - Computer Meteorological Data Message*
4002	*MET TA - Meteorological Target Acquisition Data Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (4 of 40)

Msg	Contains
4003	*MET TALL - Meteorological Target Area LOW Level Message*
4004	*MET TA - Meteorological Target Acquisition Message*
4005	*MET CFL - Computer Meteorological Fallout Input Message*
4006	*MET CW - Meteorological Forecast Message*
4007	*Computer Meteorological Data Message*
4009	*Meteorological Message (MET)*
4010	*MET CM1 - Computer Meteorological Message Part 1*
4011	*MET CM2 - Computer Meteorological Message Part 2*
9025	*MET FPTLL - Firing Point Low-Level Meteorological Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (5 of 40)

Msg	Contains
9040	*MET SUPRP - MDS Surface Observation Message*
K02.4 CALL FOR FIRE	
3021	**FM QF - Fire Mission Quick Response Fire Request Message**
3024	**FR MOV1 - Fire Request Moving Target (1) Message**
3025	**FR MOV2 - Fire Request Moving Target (2) Message**
3027	**FR QUICK - Quick Response Fire Request Message**
3032	**FR LASER - Fire Request Using Laser Message**
3033	**FR SHIFT - Fire Request Using Shift from a Known Point Message**
3034	**FR GRID - Fire Request Using Grid Coordinates Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (6 of 40)

Msg	Contains
3036	**FR POLAR - Fire Request Using Polar Coordinates Message**
3041	**FM CFF - Fire Mission Call for Fire Message**
3053	*FM THMTGT - Fire Mission Terminal Homing Munition and/or Moving Target Message*
3054	**FM CFF - Fire Mission Call for Fire Message**
3056	**FM CFF - Fire Misison Call for Fire Message**
3057	*FM THMTGT - Fire Mission Terminal Homing Munition and/or Moving Target Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (7 of 40)

K02.5 SHELL, BOMB, MORTAR REPORT

2009 *SHELREP - Artillery Target Intelligence Shelling Report*

2011 *ATI SHR - Artillery Target Intelligence Shell Report Message*

K02.6 OBSERVER NOTIFICATION

3012/ **FM FOCMD - Fire Mission Forward Observer Command Message**

3019/ **FM FOCMD - Fire Mission Forward Observer Command Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (8 of 40)

Msg	Contains
3031/	**FOCMD - Forward Observer Command Message**
3040/	**FM FOCMD - Fire Mission Forward Observer Command Message**
3048/	**Forward Observer Command Message**
3052/	*Radar Ready/Registration Report*

K02.7 SURVEY CONTROL POINT

6008	*SPRT SCPST - Survey Control Point Storage*
6501	*SURV LIST - Survey List Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (9 of 40)

Msg	Contains
6509	*SURV PNT - Survey Point Message*
K02.8	SCHEDULE OF FIRES
5000	*NNFP FASCAM - NNFP Family of Scatterable Mines Minefield Input Message*
5001	*FIREPLAN*
5003/	*NNFP TARGET - Target Message*
5005	**NNFP FPTU - Fire Planning Target Update Input Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (10 of 40)

Msg	Contains
5006	*NNFP XTGT - Non-Nuclear Fire Plan Target Data*
5007	*NNFP XSCD - Target Data Transmission Message*
5018	**NNFP CFF - Nonnuclear Fire Planning Call for Fire Message**
5020	*PLAN DESC - Fire Plan Description Message*
5021	*PLAN SCHD - Fire Plan Schedule Message*
5022	*TGT ORDR - Target Order Message*
5030	**NNFP INST - Nonnuclear Fire Planning Target Instructions Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (11 of 40)

Msg	Contains
5032	**NNFP RESFU - Nonnuclear Fire Planning Reserve Unit/Interval Message**
____	**NNFP COMFP - Nonnuclear Fire Planning Compute Fire Plan**
K02.9 TARGET DATA	
2000	*ATI AZR - Artillery Target Intelligence Azimuth Report*
2001	*ATI AZR - Artillery Target Intelligence Azimuth Distance Report Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (12 of 40)

Msg	Contains
2002	*ATI CDR - Artillery Target Intelligence Coordinate Report Message*
2003	*ATI TGR - Artillery Target Report Input Message*
2005	*ATI CDR - Artillery Target Intelligence Coordinate Report Message*
2006	*ATI CDR- Artillery Target Intelligence Coordinate Report*
2007	*ATO GRID - Artillery Target Intelligence Report Using Grid Coordinates*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (13 of 40)

Msg	Contains
2008	*ATI POLAR - Artillery Target Intelligence Report Using Polar Coordinates*
2011/	*ATI SHR - Artillery Target Intelligence Shell Report Message*
2012	*ATI MFR - Artillery Target Intelligence Mission Fired Report*
2018	*ATI TTR - Artillery Target Intelligence Terminal Homing Munitions Target Report*
2020	*ATI TGT - Artillery Target Intelligence Target Report*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (14 of 40)

Msg	Contains
K02.10 FIRE PLAN MISSION/FIRE PLAN CANCELLATION	
3018/	**FM EOM - Fire Mission End of Mission**
5003/	*NNFP TARGET - Target Message*
5025/	**NNFP COMD - Nonnuclear Fire Planning Command Message**
K02.11 AMMUNITION INVENTORY	
1023/	*AFU AMSS - Ammunition and Fire Unit Ammunition Storage Site Message*
1029	*Ammunition Status Message*
1032	*AFU AMMO - Fire Unit Ammunition Status Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (15 of 40)

Msg	Contains
K02.12 ON-CALL FIRE COMMAND	
3023	**FM FIRE - Fire Mission Command to Fire Message**
3019/	**FM FOCMD - Fire Mission Forward Observer Command Message**
3031/	**FOCMD - Forward Observer Command Message**
3040/	**FM FOCMD 0 Fire Mission Forward Observer Command Message**
3048/	**Forward Observer Command Message**
K02.13 MISSION CLEARANCE	
NONE (NOT IMPLEMENTED)	

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (16 of 40)

Msg	Contains
K02.14 MESSAGE TO OBSERVER	
3014	**FM MTO - Fire Mission Message to Observer Message**
3037	*MTO - Message to Observer Message*
3043	*FRND BA - Friendly Fire - Battery*
3044	*FRND TGT - Friendly Fire Target*
3046	*Message to Observer Message*
3055	*FM MTO Message to Observer Message*
3064/	*HB/MPI - Height of Burst and Mean Point of Impact Registration Message*
3065/	*RDR REG - Radar Registration Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (17 of 40)

Msg	Contains
K02.15 COORDINATION MEASURES	
6004	*SPRT ZNE - Zone of Responsibility Message*
6005	*SPRT BEOM - Support Battlefield Geometry*
6019	*SPRT ZNE - Support Zone of Responsibility*
6022	*FL TRACE - Front LineTrace Message*
6024	*SPRT GEO1 - Support Battlefield Geometry 1 Message*
6025	*SPRT GEO2 - Support Battlefield Geometry 2 Message*
6028	*SPRT PNT - Support Point Message*
9065	*SPRT ACA - Support Airspace Coordination Area Message*
9070/	*SPRT DISP - Support Display Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (18 of 40)

Msg	Contains
K02.16 END OF MISSION AND SURVEILLANCE	
1033	**AFU MFR - Fire Unit Nonnuclear Mission Fired Report Message**
3003/	**FM SUBS - Fire Mission Subsequent Commands Message**
3018/	**FM EOM - Fire Mission End of Mission**
3026	**EOM & SURV - End of Mission and Surveillance Message**
3028/	*SA COORD - Subsequent Adjustment Coordinates Message*
3029/	*SA LASER - Subsequent Adjustment Using Laser Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (19 of 40)

Msg	Contains
3035/	*PREC REG - Precision Registration*
3038/	*SUBQ ADJ - Subsequent Adjust Message*
3050	**End of Mission Command Message**

K02.17 MISSION SUMMARY - INDIRECT FIRE/CAs MISSION

NONE (NOT IMPLEMENTED)

K02.18 FIRE UNIT CAPABILITIES

1024	*AFU UPDATE - Fire Unit Update Message*
1027	*Howitzer Status Update Message*
1028	*Fire Unit Mask Data Message*
1031	*Muzzle Velocity Message*
1043/	*AFU FUST - Fire Unit Status Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (20 of 40)

Msg	Contains
K02.19	ARTILLERY INTELLIGENCE QUERY/STANDING REQUEST FOR TARGET INFORMATION
2013	**ATI PREFP - Artillery Target Intelligence Prepares a Fire Plan**
2014	**ATI SRI - Artillery Target Intelligence Standing Request for Info Input Message**
2015	**ATI QUERY - Artillery Target Intelligence Query Message**
2021/	**ATI CMD - Artillery Target Intelligence Command Message**
2026	**ATI SRCH - Artillery Target Intelligence Search Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (21 of 40)

Msg	Contains
K02.20 SURVEY CONTROL POINT INFORMATION REQUEST	
6010	*SPRT TPAC - Survey Control Point Access*
6502	*SURV SRCH - Survey Search Message*
K02.21 REQUEST FOR CLEARANCE TO FIRE	
	NONE (NOT IMPLEMENTED)
K02.22 SUBSEQUENT ADJUST	
3003/	**FM SUBS - Fire Mission Subsequent Command Message**
3028	**SA COORD - Subsequent Adjustment Coordinates Message**
3029	**SA LASER - Subsequent Adjustment Using Laser Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (22 of 40)

Msg	Contains
3035	*PREC REG - Precision Registration*
3038	*SUBQ ADJ - Subsequent Adjust Message*
3052/	*Radar Ready/Registration Report*
3064/	*HB/MPI - Height of Burst and Mean Point of Impact Registration Message*
3065/	*RDR REG - Radar Registration Message*
K02.23 EXECUTIVE FIRE PLAN	
5019	**NNFP EXECFP - Execute Fire Plan Message**
5026	**NNFP COMFP - Nonnuclear Fire Planning Compute Fire Plan Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (23 of 40)

Msg	Contains
K02.24	MISSION NOTIFICATION
9130	*Target Air Hazard Message*
9140	*Platoon Air Hazard Message*
K02.5	*END OF MISSION NOTIFICATION*
	NONE (NOT IMPLEMENTED)
	AIR FORCE ICP
K02.27	**TACTICAL AIR REQUEST**
K02.28	*(ALLOCATED)*
K02.29	*(ALLOCATED)*
K02.30	*(ALLOCATED)*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (24 of 40)

Msg	Contains
	AIR FORCE ICP
K02.31	**MISSION REQUEST REJECTION**
K02.32	**TACTICAL AIR REQUEST ACCEPTANCE**
K02.33	**TACTICAL AIR REQUEST AIR CREW BRIEFING**
K02.34	*AIRCRAFT ON-STATION MESSAGE*
K02.35	*AIRCRAFT DEPART INITIAL POINT MESSAGE*
K02.36	*AIRCRAFT MISSION UPDATE MESSAGE*
K02.37	*(ALLOCATED)*
K02.38	*(ALLOCATED)*
K02.39	*(ALLOCATED)*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (25 0f 40)

Msg	Contains
K02.40 ROCKET/MISSILE LAUNCHER ORDERS	
1039	**Command (COM)**
3061	**Call for Fire Message (CFF)**
K02.41 GEOGRAPHICAL REFERENCE DATA	
6000	*SPRT MAP - Map Modification*
6021	*Map Modification Input Message*
K02.42 COMMANDERS FIRE UNIT GUIDANCE	
1004	**AFU POSTUR - Ammunition Fire Unit Posture Message**
1007	*AFU AMOL - Ammunition Fire Unit Critical Ammunition Level Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (26 of 40)

Msg	Contains
1008	*AFU ASR - Ammunition Fire Unit Available Supply Rate Message*
1019	*AFU POSTUR - Fire Unit Posture Message*
K02.43 COMMANDERS FIRE MISSION GUIDANCE	
3005	*FM FDSMOD - Fire Mission Direction System Modification Message*
3006	*FM SELECRI - Fire Mission Selection Criteria Input Message*
3007	**FM ATTACK - Fire Mission Commander's Attack Method Input Message**
3008	*FM SHLCRI - Fire Mission Shell Criteria Input Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (27 of 40)

Msg	Contains
3009	*FM MOD - Fire Mission Commander's Criteria Modifications Input Message*
3010	**FM FUSEL - Fire Mission Commander's Fire Unit Selection Criteria Input Message**
3073	**FM XCLUDE - Fire Mission Commander's Fire Unit Exclusion Message**
5017	**NNFP MOD - Commander's Criteria Modifications Input Message**
5029	**NNFP FUSEL - Nonnuclear Fire Planning Fire Unit Selection Criteria Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (28 of 40)

Msg	Contains
5031	**NNFP ATTACK - Nonnuclear Fire Planning Attack Message**
5033	**NNFP XCLUDE - Nonnuclear Fire Planning Fire Unit Exclusion Message**
9010	**FM CMDMOD - Commander's Criteria Modification**
K02.44 COMMANDER'S TARGET ACQUISITION GUIDANCE	
2019	*ATI TCRIT - Artillery Target Intelligence Targeting Criteria Message*
6002	*SPRT FILTER - Format Amplified Priority/Censor Zone*
6003	*SPRT FILTER - Support Filter Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (29 of 40)

Msg	Contains
6007	*SPRT SEARCH - Support Search Message*
9005	*ATI CTTCRT - Commander's Tactical Terminal*
K02.45 HOWITZER FIRE ORDERS	
3048/	**Forward Observer Command Message**
3049	**Fire Mission Message**
3051	**Firing Commands Message**
3047	**Observer Message**
K02.46 REPLY/REMARKS	
9	*SYS DMDRLY - System Digital Message Device Relay Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (30 of 40)

Msg	Contains
25/	*Response Message (RSP)*
27	*Fire Direction Data Manager (FDDM) to Weapon Message*
29	*FREETEXT Message*
2016	*ATI CBTI - Artillery Target Intelligence Combat Information Report*
2017	*ATI SVL - Artillery Target Intelligence Surveillance Report Message*
9020	*FM TGTSIG - Target Signature Data*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (31 of 40)

Msg	Contains
9110	*SYS DPUMSN - DPU Mission Message*
3012/	**FM FOCMD - Fire Mission Forward Observer Command Message**
K02.47	ROCKET/MISSILE OPERATIONAL STATUS UPDATE
25/	*Response Message (RSP)*
1003/	**AFU OPSTAT - Ammunition Fire Unit Operational Status Message**
1021/	**AFU OPSTAT - Fire Unit Operational Status Message**
1038	*Data Base Update Message (DBU)*
1040	**Mission Fired Message (MF)**
1041	**Launcher Status Message (LST)**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (32 of 40)

Msg	Contains
1043/	**AFU FUST - Fire Unit Status Message**
3062	**Mission Status Message (MST)**
K02.48 FIRE PLAN ASSIGNMENT DATA	
1015	**AFU BUILD - Ammunition Fire Unit Build A Plan Input Message**
5025/	**NNFP COMD - Nonnuclear Fire Planning Command Message**
6029	*SPRT BUILD - Support Build Message*
K02.49 ROCKET/MISSILE MUNITIONS EFFECTS DATA	
6013	*SPRT AMODAT - Support Ammunition Data*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (33 of 40)

Msg	Contains
6014	*SPRT RNGEFF - Support Range Dependent Delivery Errors/Effects Data*
6015	*SPRT EFFDAT - Support Effects Data*
K02.50 OBSERVER STATUS	
3017	*FM OBCO - Fire Mission Observer Location Message*
3030	*OBSR LOC - Entry of Observer's Grid Coordinates Message*
3042	*FM OBCO - Fire Mission Observer Coordinate Message*
K02.51 UNIT SITUATION REPORT	
1014	*AFU SR - Ammunition Fire Unit Situation Report Input Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (34 of 40)

Msg	Contains
6026	*SPRT UNIT - Support Fire Unit Message*
6027	*SPRT EQMT - Support Equipment Message*
9070/	*SPRT DISP - Support Display Message*
K02.52 REQUEST FOR REPORT	
22	*Request for Data Message*
1003/	**AFU OPSTAT - Ammunition Fire Unit Operational Status Message**
1023/	**AFU AMSS - Ammunition and Fire Unit Ammunition Storage Site Message**
1025	**AFU COMD - Ammunition Fire Unit Command Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (35 of 40)

Msg	Contains
1042	**Request Message (REQ)**
2021/	**ATI CMD - Artillery Target Intelligence Command Message**
3071/	**FM COMD - Fire Mission Commands Message**
4012	**MET COMD - Meteorological Command Message**
5025/	**NNFP COMD - Nonnuclear Fire Planning Command Message**
6020	**SPRT COMD - Support Command Message**
6023	*SPRT REQST - Status Request Message*
9030	*MET REQST - MET Request Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (36 of 30)

Msg	Contains
K02.53 TARGET ELEMENT DATA ENTRY	
6016	*SPRT TEDE - Target Element Data Entry*
K02.54 DEPLOYMENT COMMAND	
1026	**Movement Orders Message**
9006	**Deployment Command Message**
K02.55 MUTUAL SUPPORT DATA EXCHANGE	
17	**SYS FSO - Fire Support Officer Message**
20	*SYS SBT - Subscriber Table Message*
9210	*SPRT MEM - Transfer Member Data*
23	*Subscriber File Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (37 of 40)

Msg	Contains
K02.56 FIRE UNIT TACTICAL SCHEDULING	
9100	*SYS CONFIG - DFU Configuration Message*
9060	**SCD TASK - Fire Mission Schedule Task Information**
K02.57 OPERATIONS ORDER	
9075	**SPRT ORDERS - Support Orders Message**
K02.58 AIRBORNE FIRE MISSION	
3068	**AIR FIRE - Airborne Fire Request**
3069	**AIR UPD - Airborne Mission Target Position Update**
3070	**AIR COMD - Airborne Mission Command Message**

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (38 of 40)

Msg	Contains
K05.1 NUCLEAR STRIKE WARNING	
9160	*STRK.NUCWN - Nuclear Strike Warning*
K05.2 BASIC WIND REPORT (BWR)	
9170	*NBC.BWR - Basic Wind Report*
K05.3 CHEMICAL DOWNWIND REPORT (CDR)	
9180	*NBC.CDR - Chemical Downwind Report*
K05.4 EFFECTIVE DOWNWIND REPORT (EDR)	
9190	*NBC.EDR 0 Effective Downwind Report*
K05.5 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT ONE (NBC1)	
9201	*NBC.NBC1 - NBC1 Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (39 of 40)

Msg	Contains
K05.6 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT TWO (NBC2)	
9202	*NBC.NBC2 - NBC 2 Message*
K05.7 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT THREE (NBC3)	
9203	*NBC.NBC3 - NBC 3 Message*
K05.8 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT FOUR (NBC4)	
9204	*NBC.NBC4 - NBC 4 Message*

VMF to TACFIRE Message Cross Reference Matrix and Preliminary MRCI Transaction Type Classifications (40 of 40)

Msg	Contains
K05.9 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT FIVE (NBC5)	
9205	*NBC.NBC5 - NBC 5 Message*
K05.10 NUCLEAR, BIOLOGICAL, CHEMICAL REPORT SIX (NBC6)	
9206	*NBC.NBC6 - NBC 6 Message*
K07.1 MEDICAL EVACUATION REQUEST	
Partial Inclusion	

SRR Agenda (2 of 4)

	Time	Subject
	0945-1030	MRCI Command & Control Transaction Requirements
☛	1030-1100	MRCI Information Transaction Requirements
	1100-1130	MRCI Data Transaction Requirements
	1130-1145	MRCI Communications Emulation Requirements
	1145-1200	Break
	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

Information Transaction Requirements

1. MRCI information transactions should be unconstrained by data formats.
2. MRCI shall use a C2 simulations interface language (CCSIL-like) to interact with C2 information within simulations e.g. data, voice, imagery.
3. MRCI shall transmit and receive CCSIL-like messages.
4. MRCI should recognize all real-to-sim, sim-to-real, sim-to-sim, and real-to-real information transactions carried by the RTI, consistent with the SOM for the C4I System.
5. MRCI shall notify the other federates of all information transactions associated with its SOM including real-to-real information transactions.
6. MRCI shall facilitate logging, affecting and routing all information routed outside the RTI by the MRCI.
7. MRCI shall provide the ability to associate C4I information transactions with an "owning/holding" entity and affect access to those information elements as a function of the attribute values of the entity.

SRR Agenda (2 of 4)

	Time	Subject
	0945-1030	MRCI Command & Control Transaction Requirements
	1030-1100	MRCI Information Transaction Requirements
☛	1100-1130	MRCI Data Transaction Requirements
	1130-1145	MRCI Communications Emulation Requirements
	1145-1200	Break
	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

Data Transaction Requirements

1. MRCI data transactions shall be unconstrained by data formats.
2. MRCI shall recognize all real-to-sim, sim-to-real, sim-to-sim, and real-to-real data transactions carried by the RTI, consistent with the SOM for the C4I System.
3. MRCI shall notify the other federates of all data transactions associated with its SOM including real-to-real data.
4. MRCI shall facilitate logging, affecting and routing all data routed outside the RTI by the MRCI.
5. Provide the ability to associate C4I data transactions with an "owning/holding" entity and affect access to those data elements as a function of the attribute values of the entity.

SRR Agenda (2 of 4)

	Time	Subject
	0945-1030	MRCI Command & Control Transaction Requirements
	1030-1100	MRCI Information Transaction Requirements
	1100-1130	MRCI Data Transaction Requirements
☛	1130-1145	MRCI Communications Emulation Requirements
	1145-1200	Break
	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

Communications Emulation Requirements (1 of 2)

1. MRCI communications emulation covers all data and messages and their associated transport layer protocols (OSI levels 1-4).
2. MRCI shall support using organic communications at the MRCI-C4I system interface.

   Radio (voice, data), wire/fiber.
3. MRCI shall operate with dynamic changes in networks to the same extent as the C4I system.
4. MRCI shall operate during, and recover from, communication failures to the same extent as the C4I system.
5. MRCI shall operate at different security levels.
6. MRCI shall forward messages among systems in a timely manner and introduce no temporal distortion to battle space data, information or command and control flows.

Communications Emulation Requirements (2 of 2)

7. MRCI shall support graceful degradation of connectivity to the same extent as the C4I system.
8. MRCI shall accommodate all communication specifications of the C4I systems SOM to the extent supported by the FOM to which it applies.

SRR Agenda (2 of 4)

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	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

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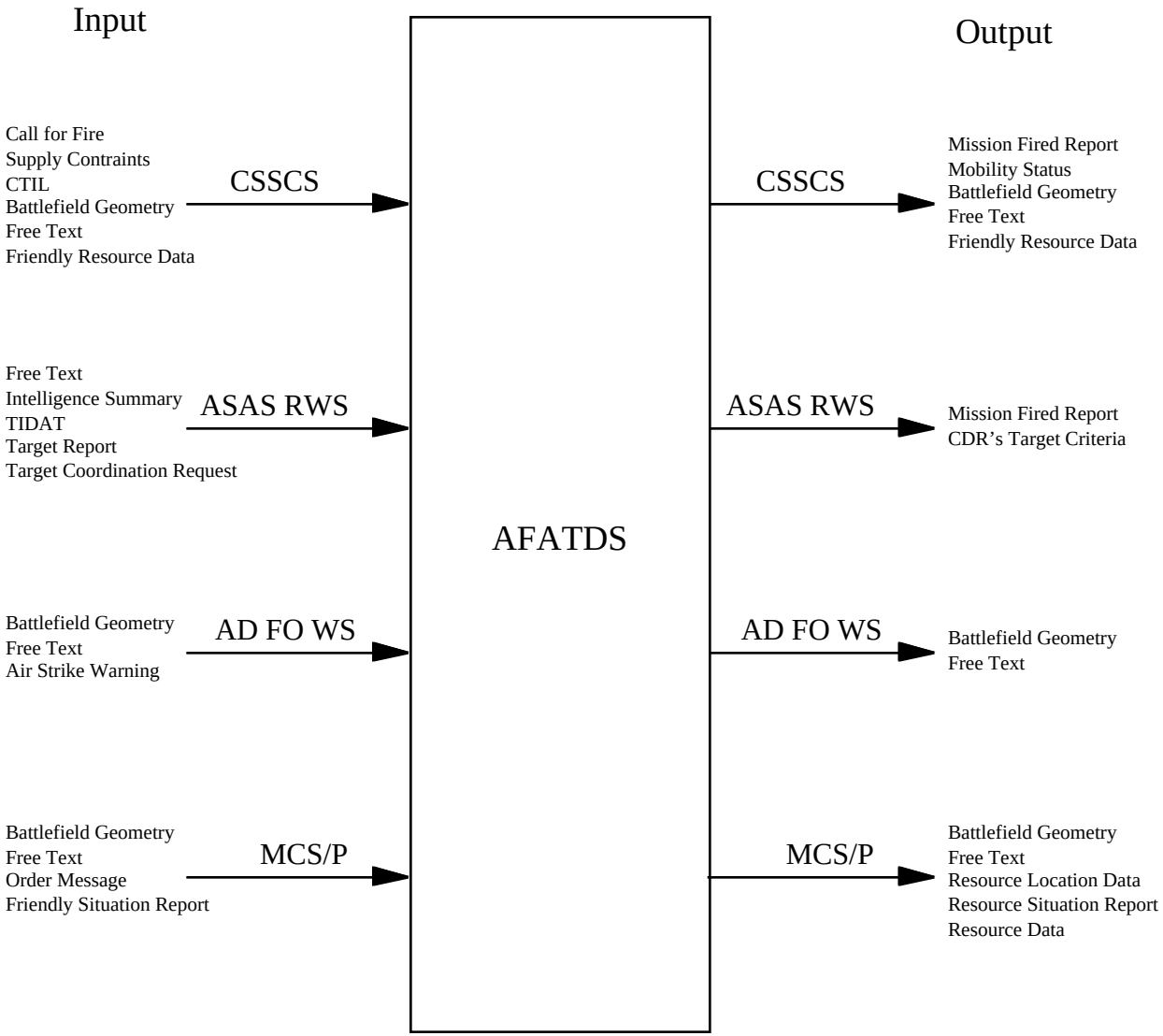
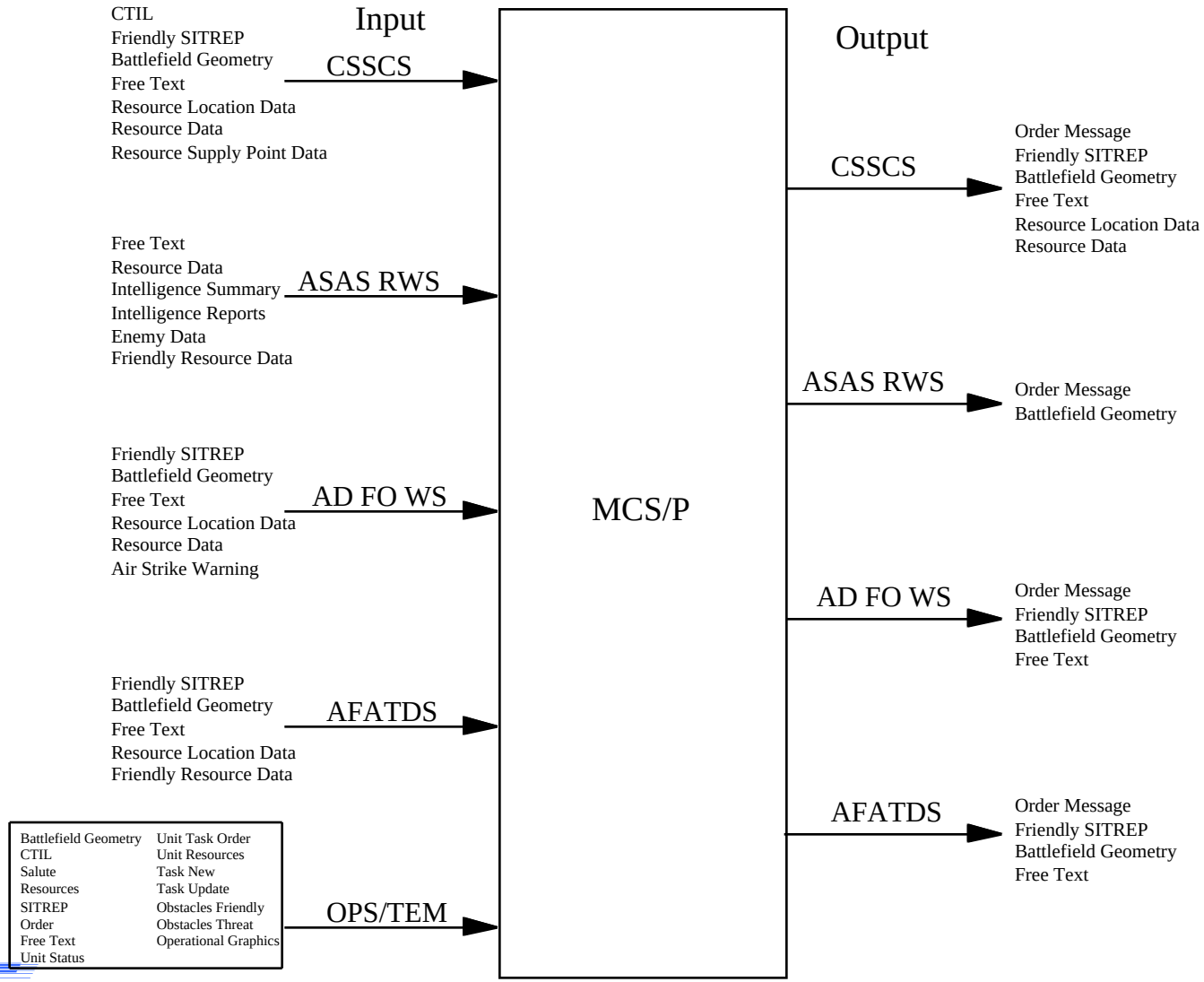
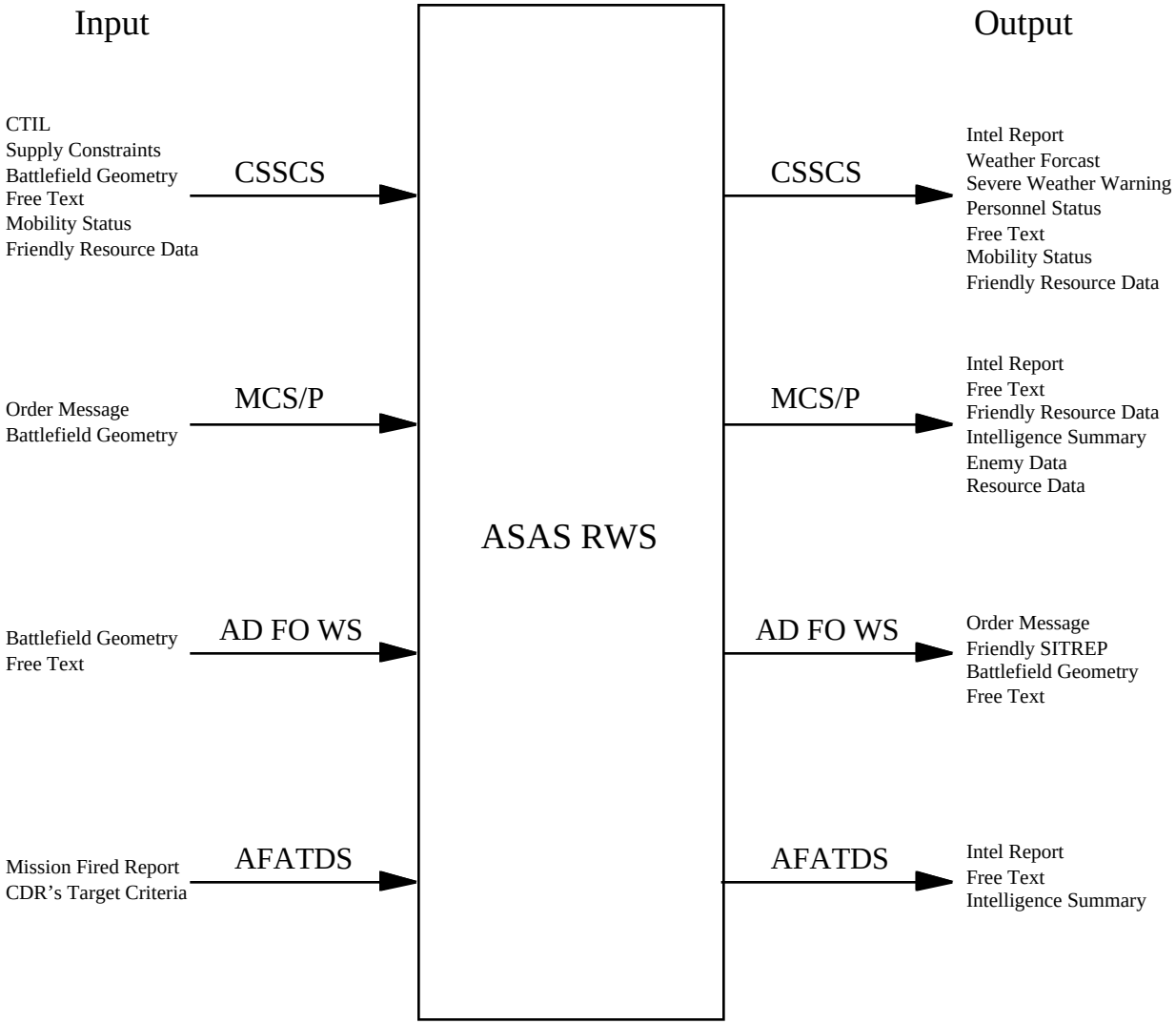
Fundamental MRCI Module Connection Topology Drivers Information and C2 Transactions (1 of 5)



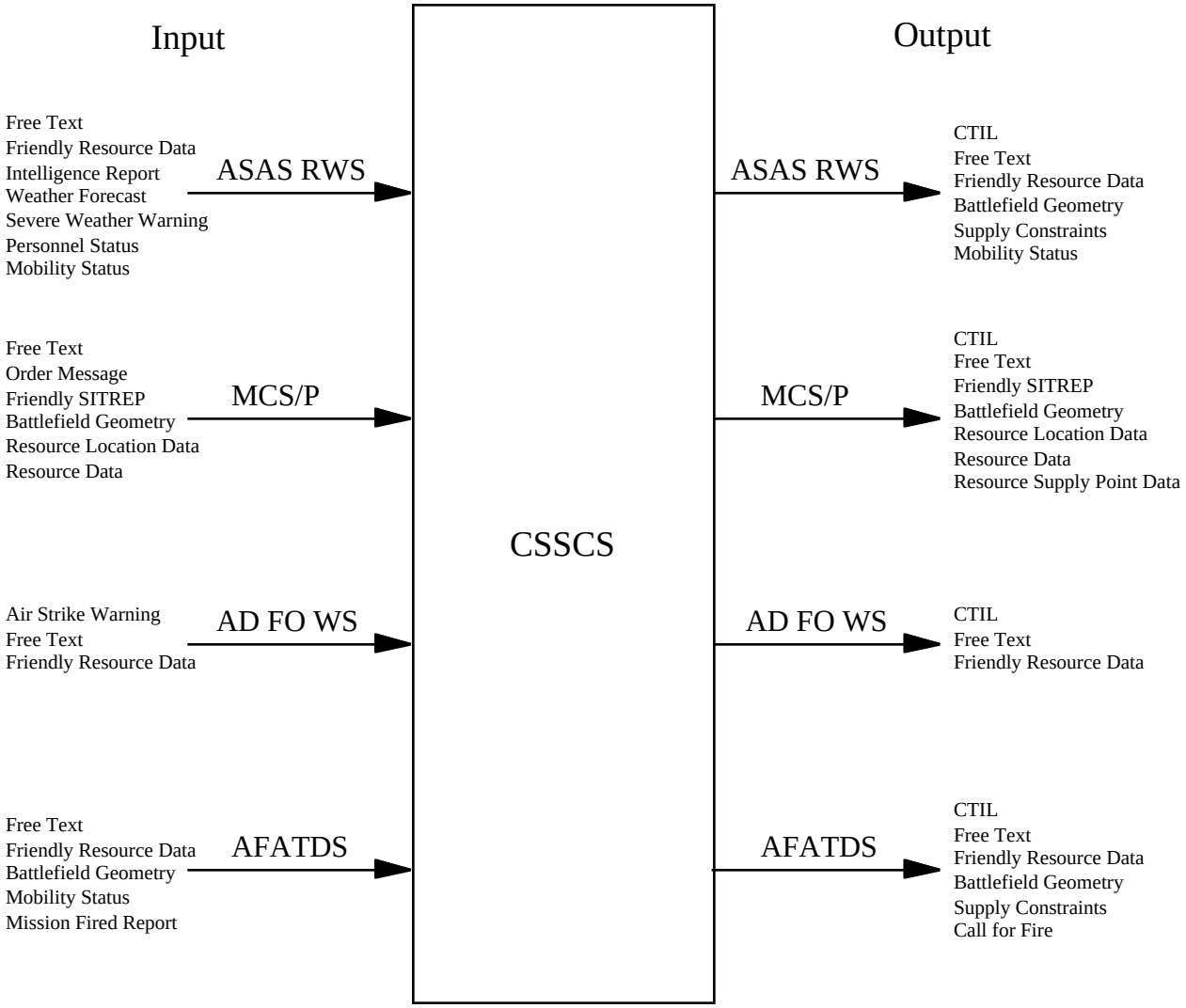
Fundamental MRCI Module Connection Topology Drivers Information and C2 Transactions (2 of 5)



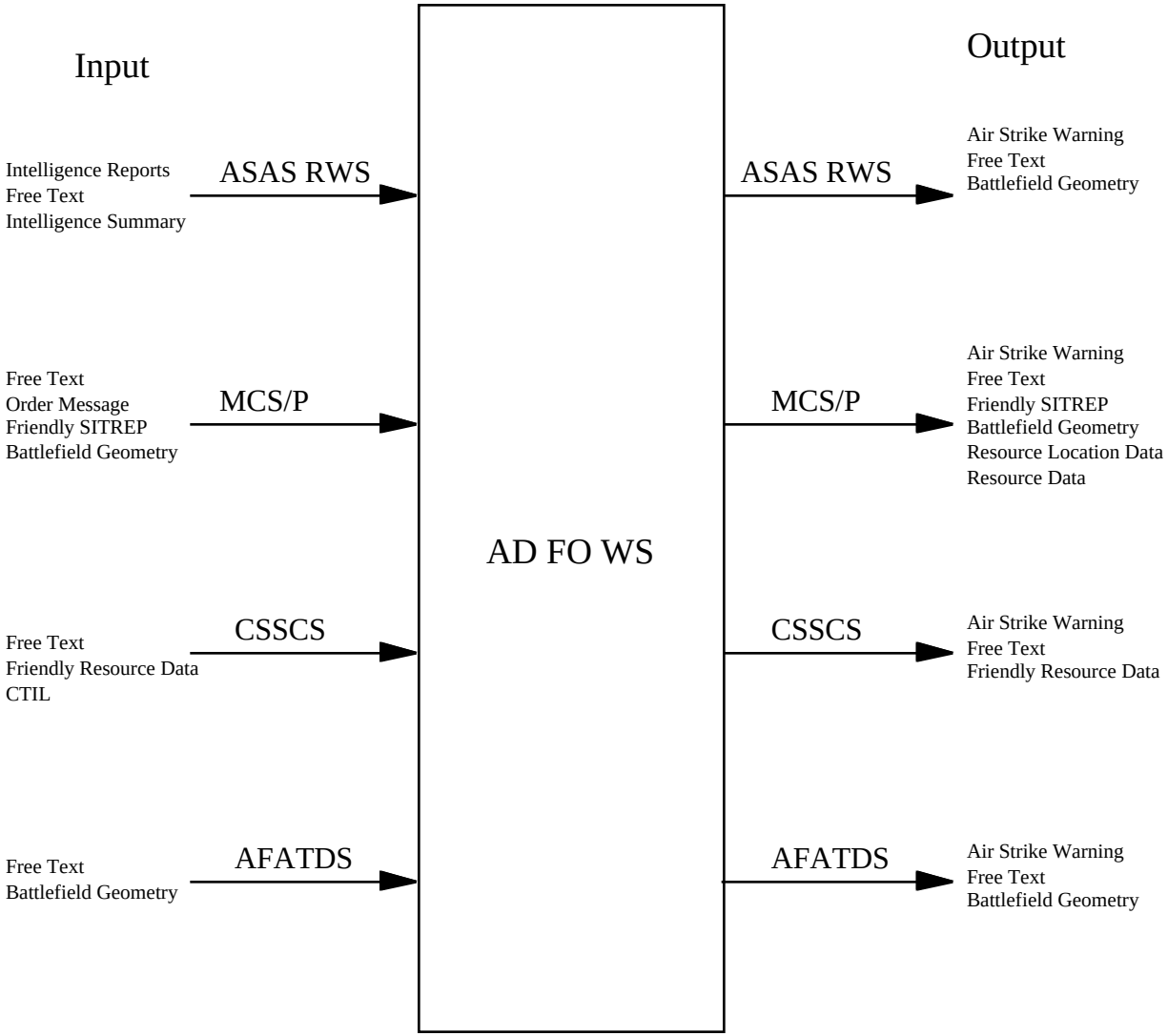
Fundamental MRCI Module Connection Topology Drivers Information and C2 Transactions (3 of 5)



Fundamental MRCI Module Connection Topology Drivers Information and C2 Transactions (4 of 5)

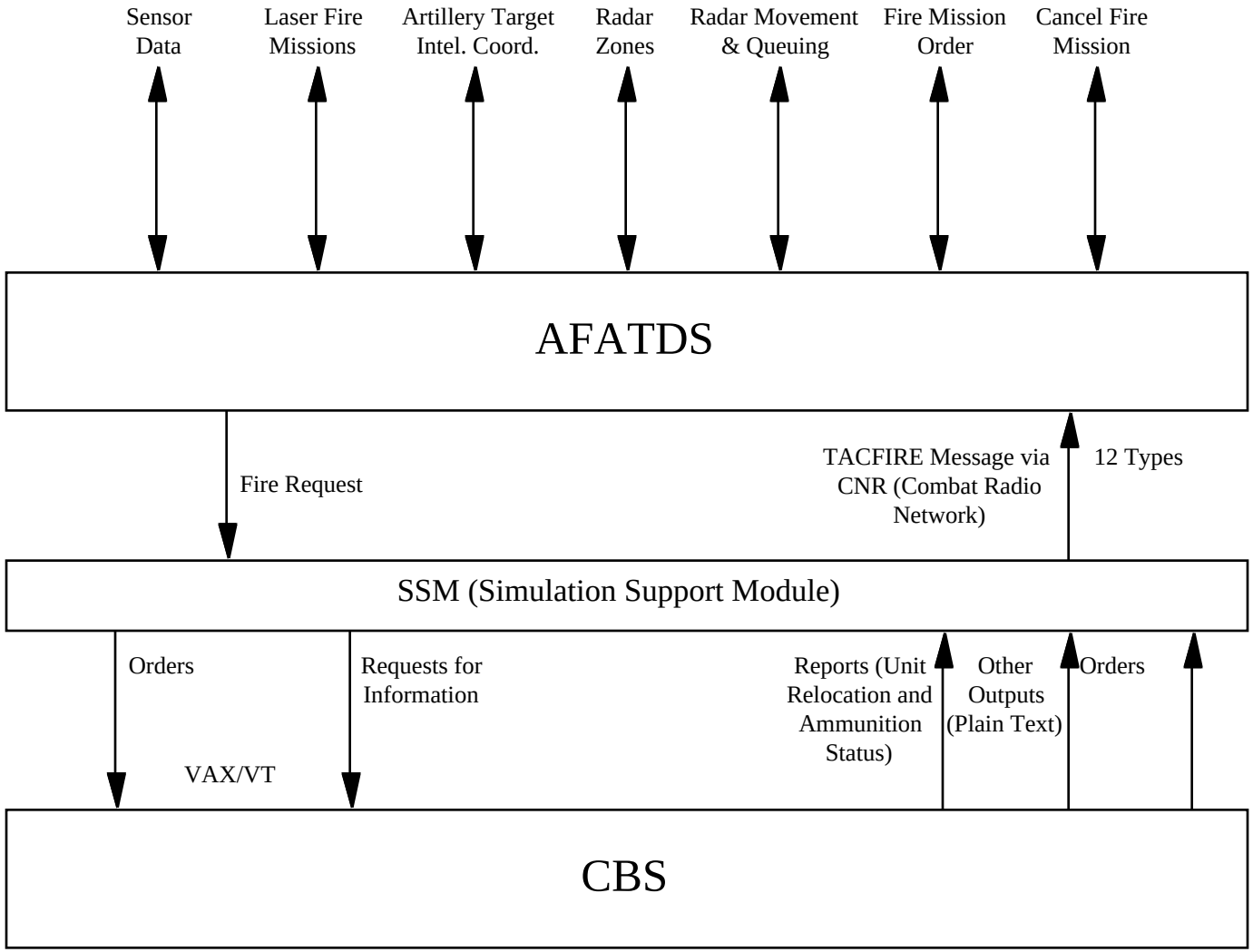


Fundamental MRCI Module Connection Topology Drivers
Information and C2 Transactions (5 of 5)

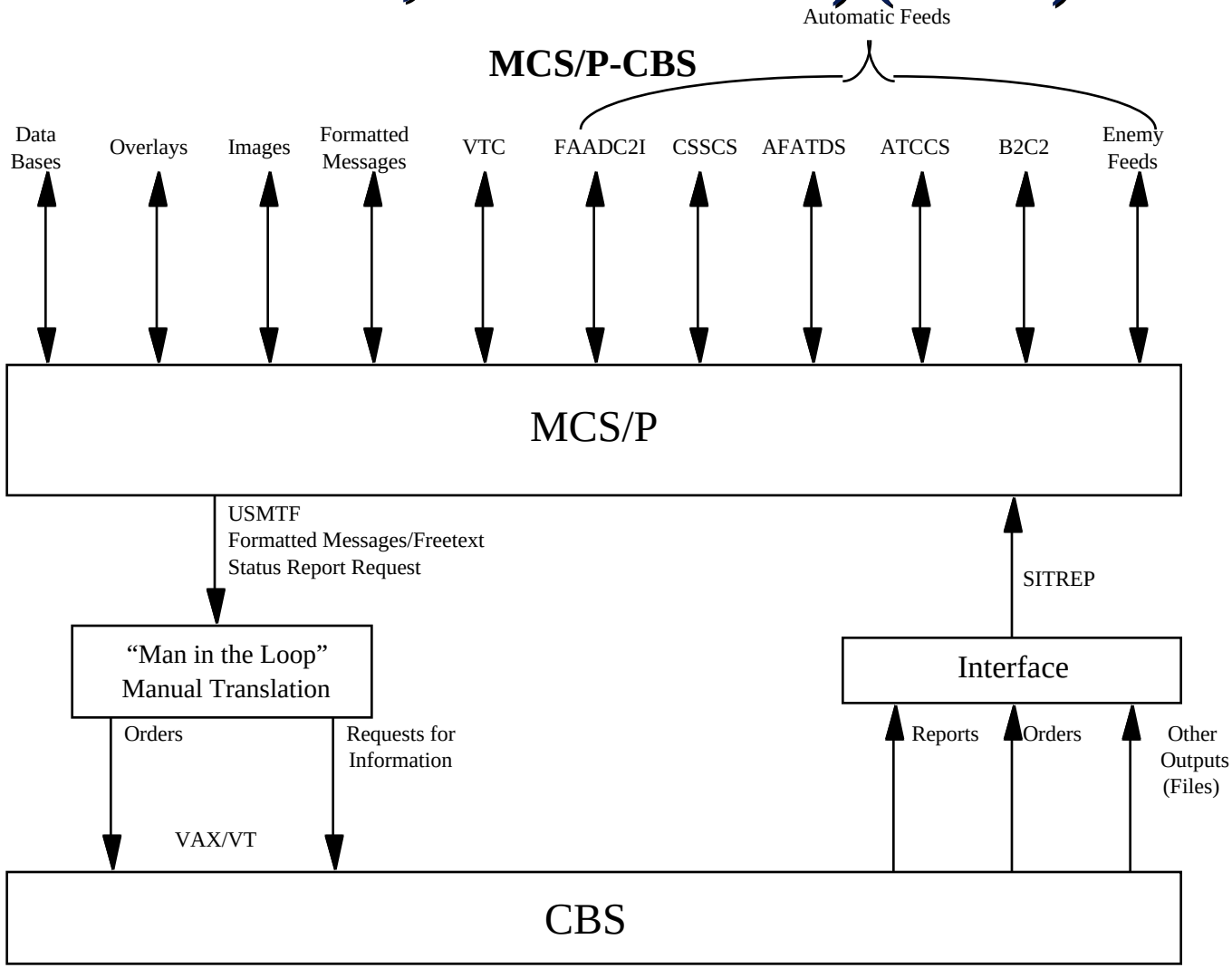


Fundamental Interaction Thread Drivers (C4I-to-Simulation Bi-directional Data Information, and C2 Flows (1 of 4)

AFATDS-CBS



Fundamental Interaction Thread Drivers (C4I-to-Simulation Bi-directional Data Information, and C2 Flows) (2 of 4)



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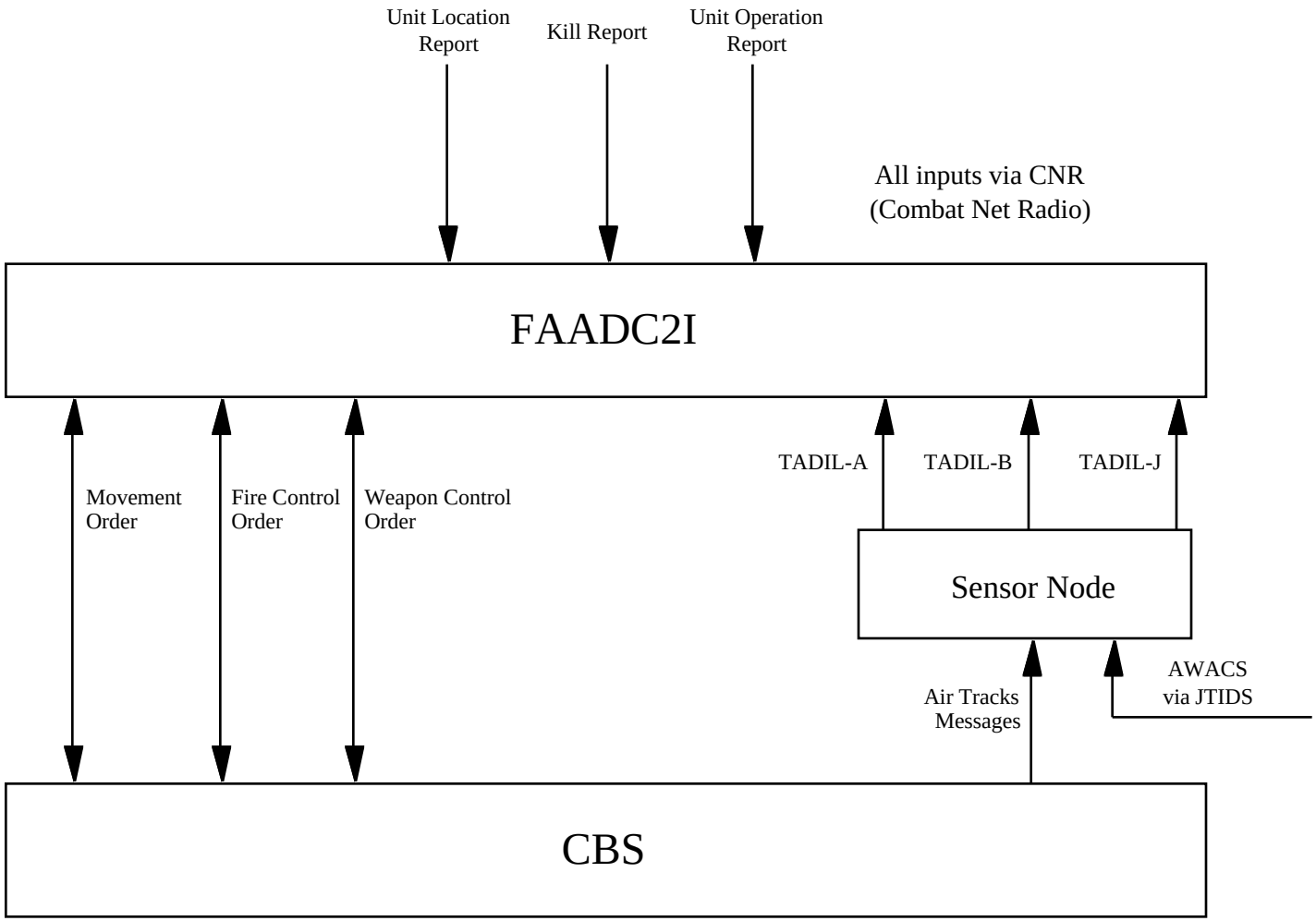
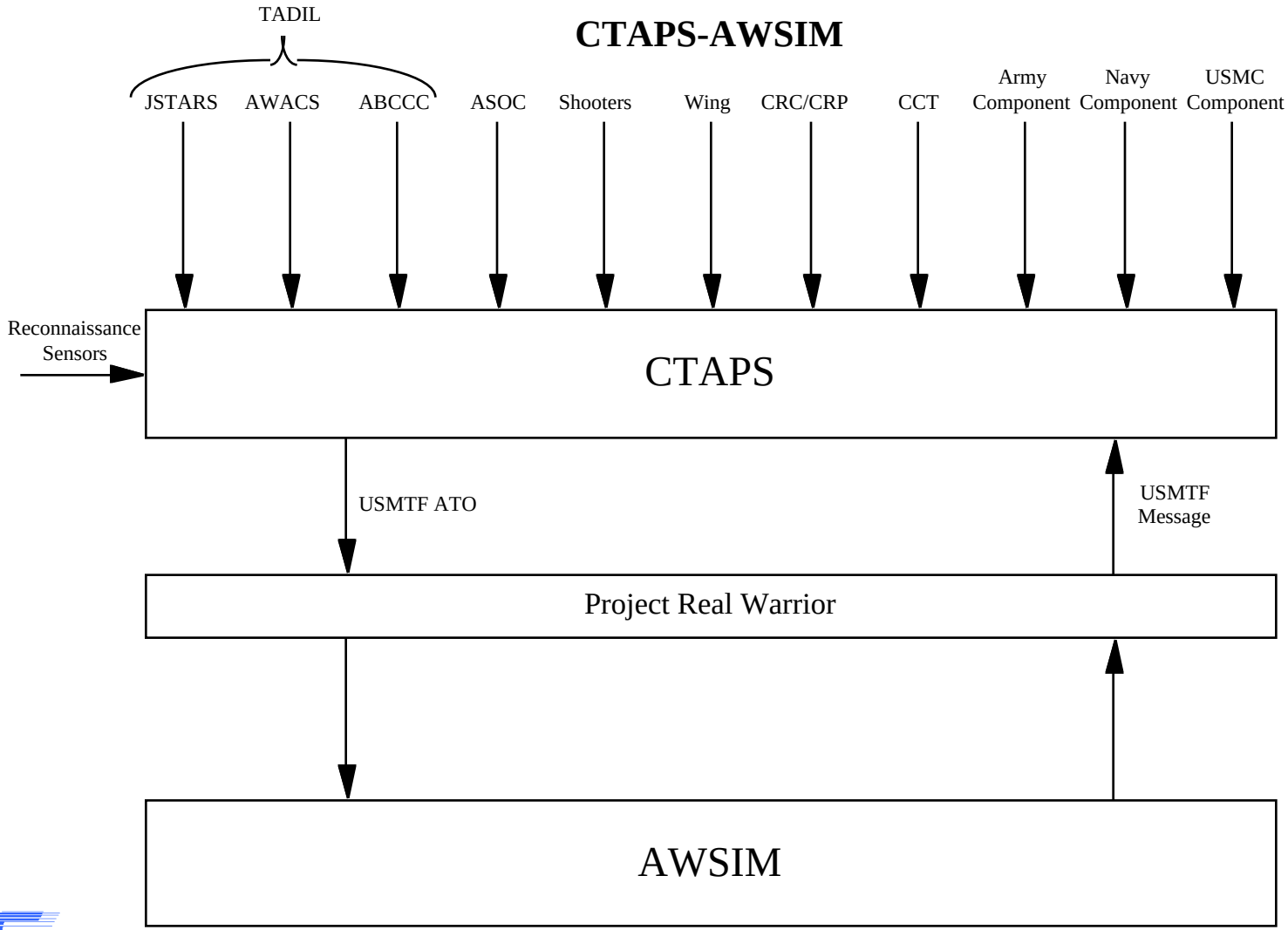
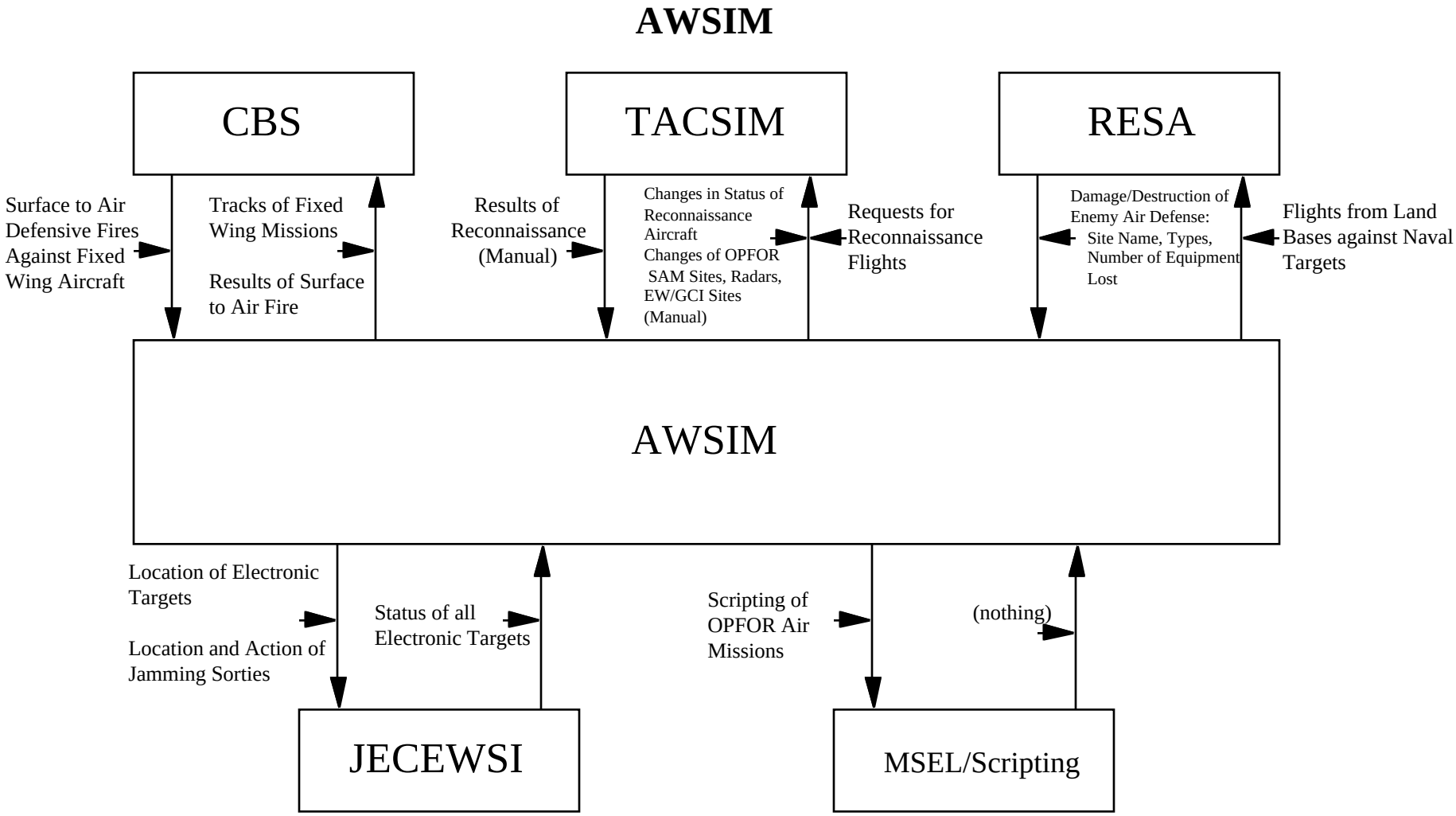


Fundamental Interaction Thread Drivers (C4I-to-Simulation Bi-directional Data Information, and C2 Flows (4 of 4)

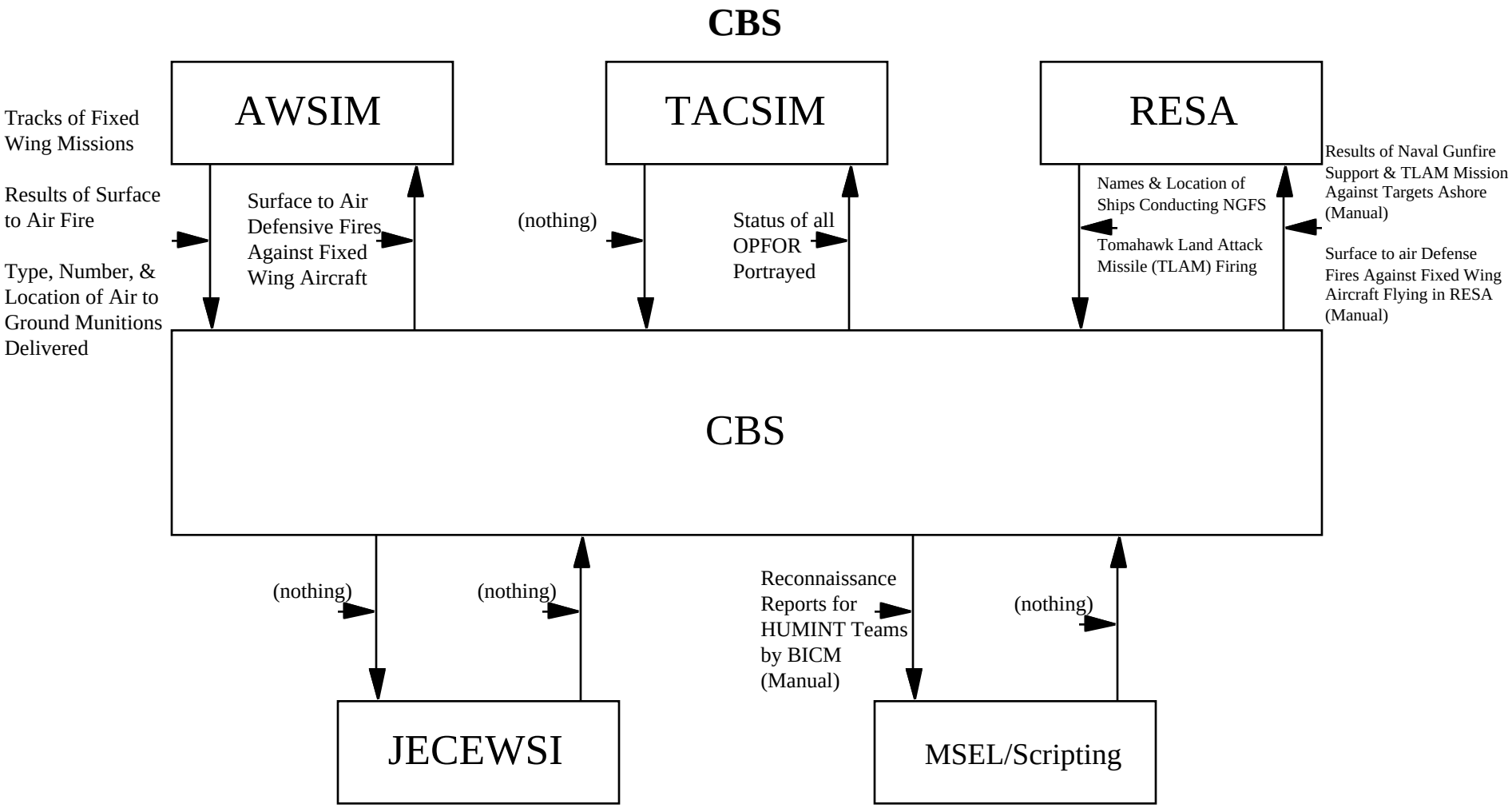


Fundamental C4I/MRCI Aggregate Simulation Object Model/Federation Object Model (Data, Information, and Command Interactions among Federated Simulation Systems (1 of 4)



Note: (Manual) under a message means "Manual Interface". If it is not noted as such, it is an "Automatic Interface".

Fundamental C4I/MRCI Aggregate Simulation Object Model/Federation Object Model (Data, Information, and Command Interactions among Federated Simulation Systems (2 of 4)



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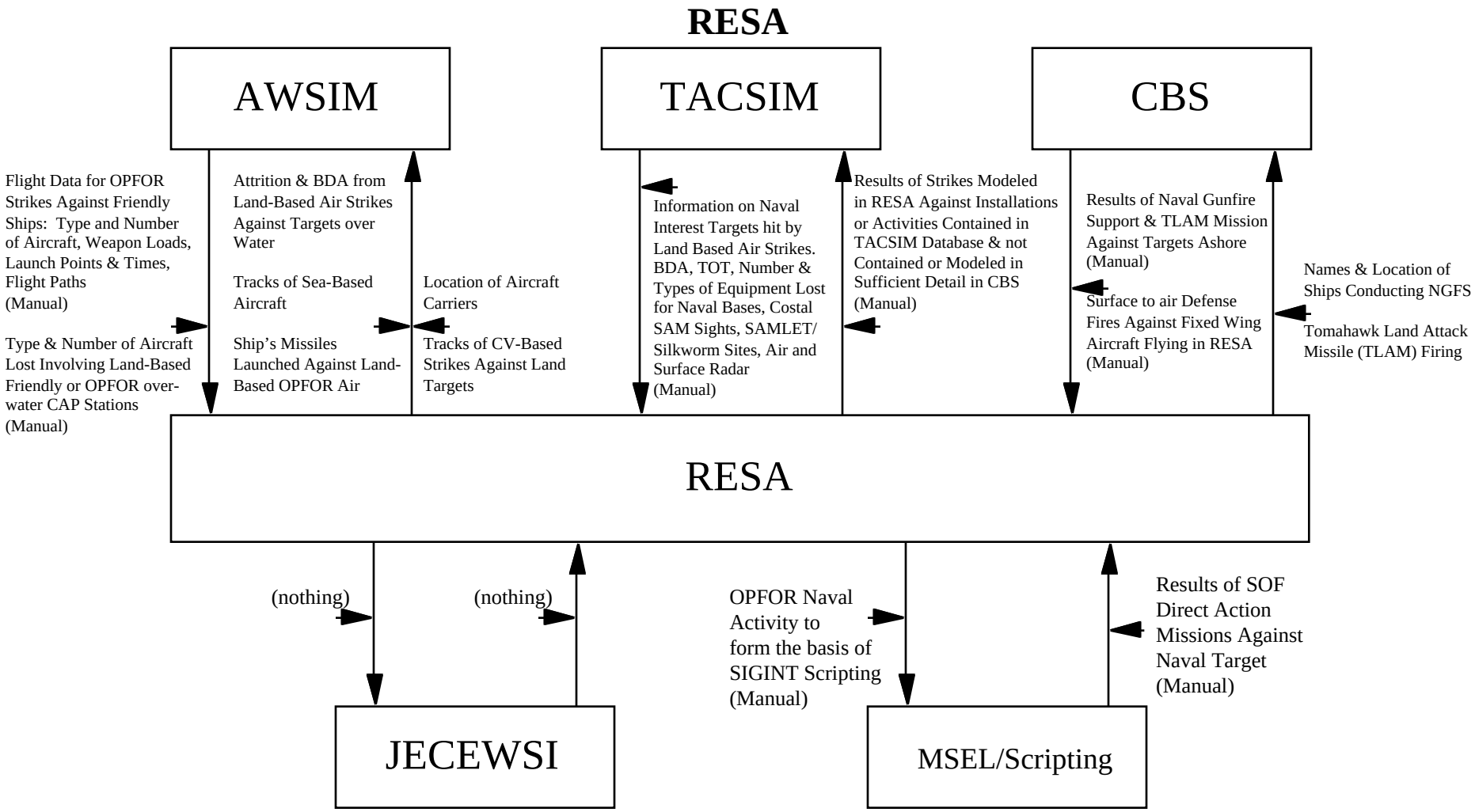

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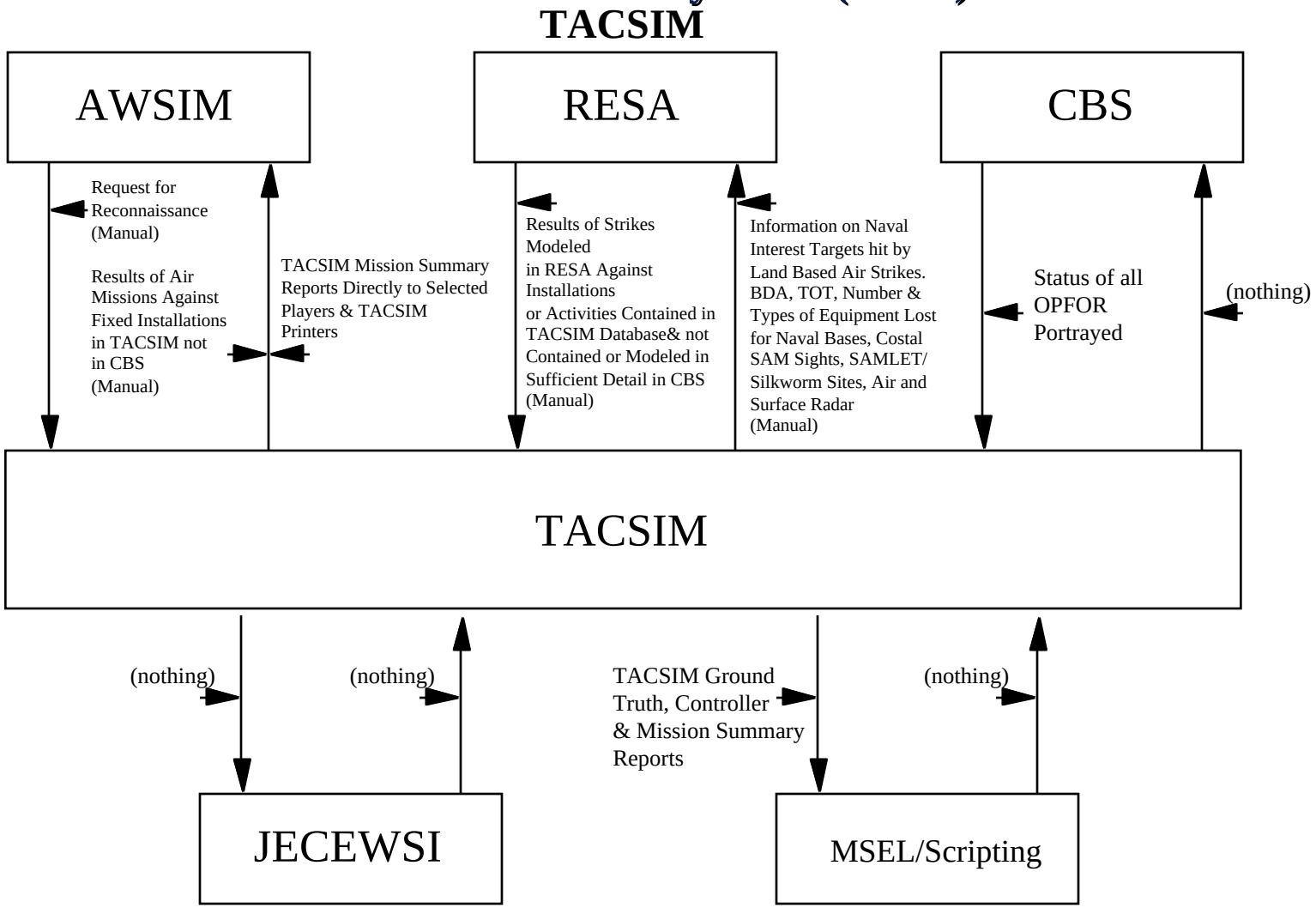
Fundamental C4I/MRCI Aggregate Simulation Object Model/Federation Object Model (Data, Information, and Command Interactions among Federated Simulation Systems (4 of 4)



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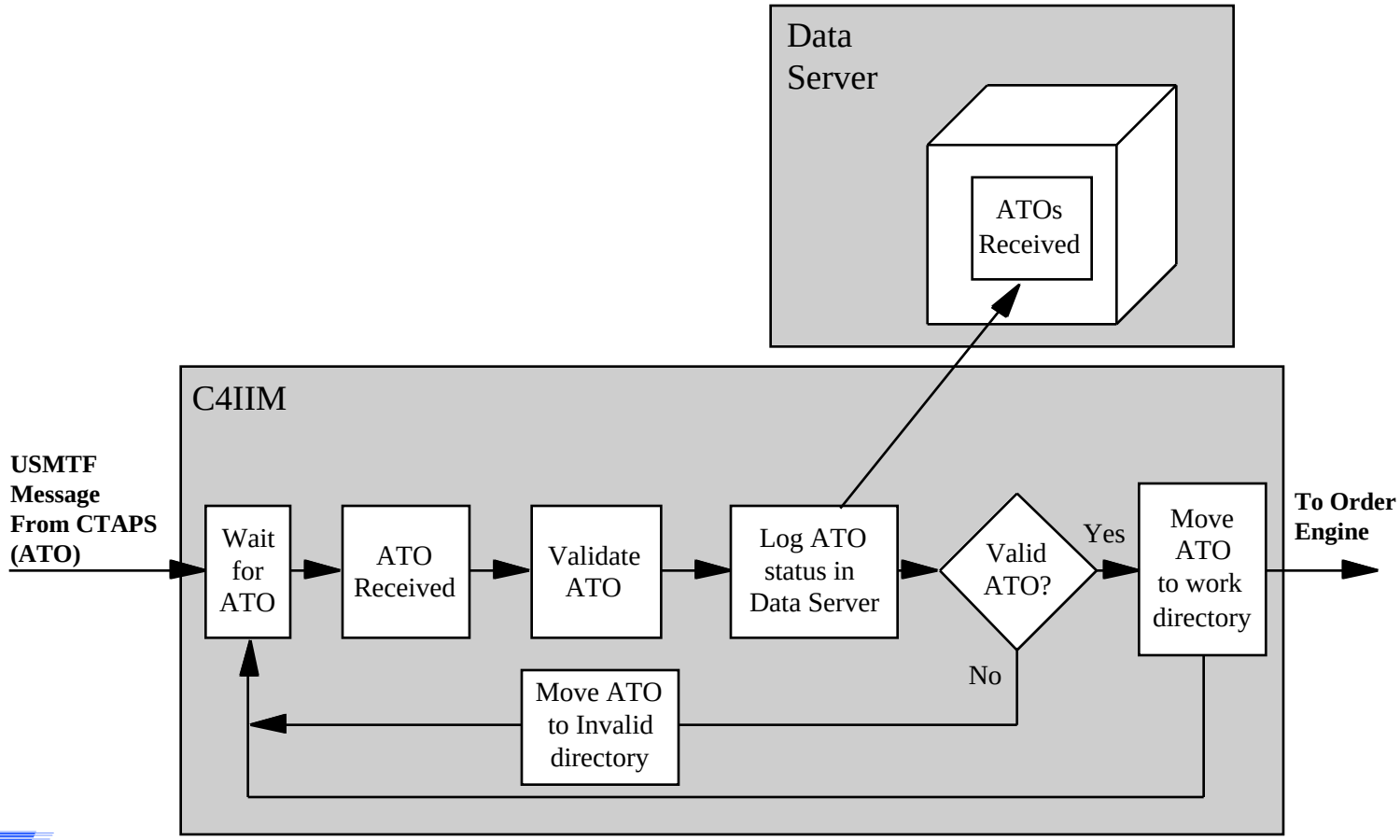
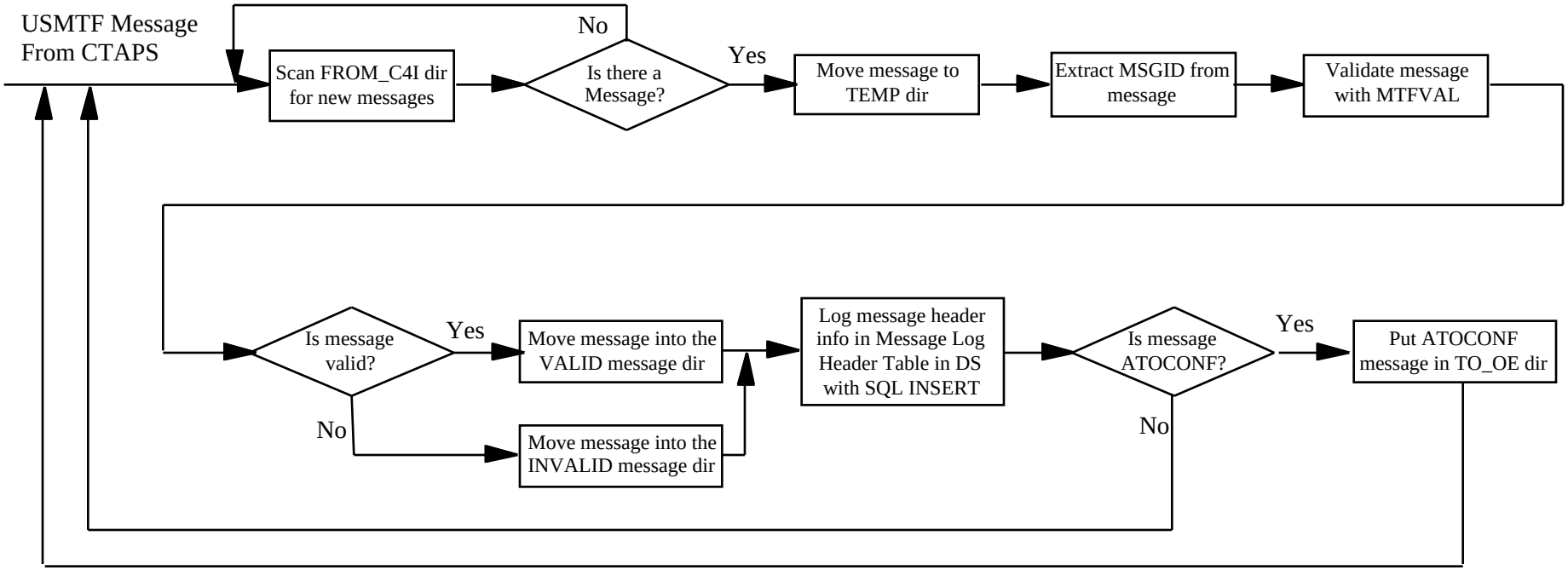
Bi-directional Functional String (CTAPS-to-AWSIMR) Preliminary Data, Information, and C2 Transformations and Flows (1 of 12)

C4IIM



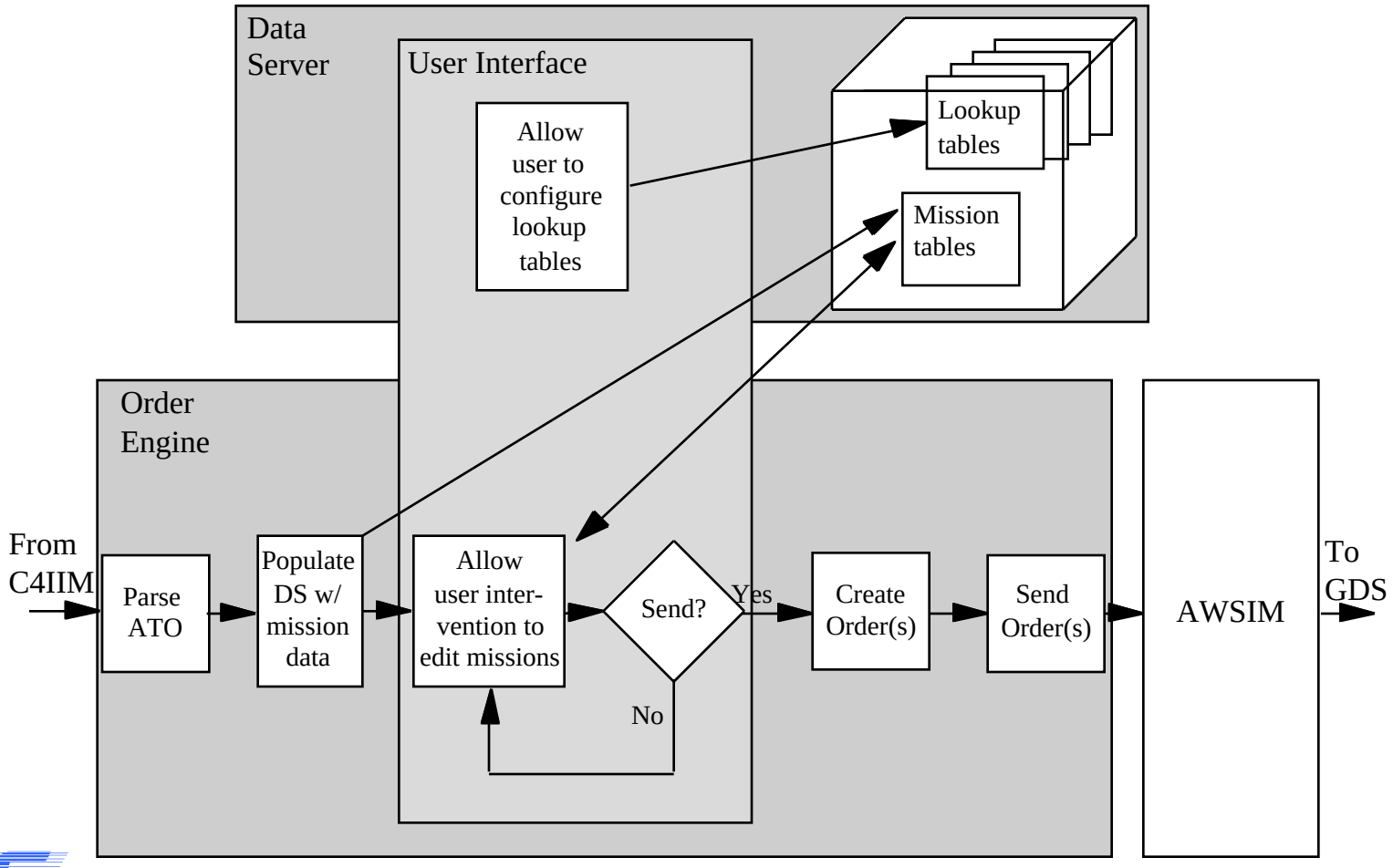
Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (2 of 12)

C4IIM (Receive)

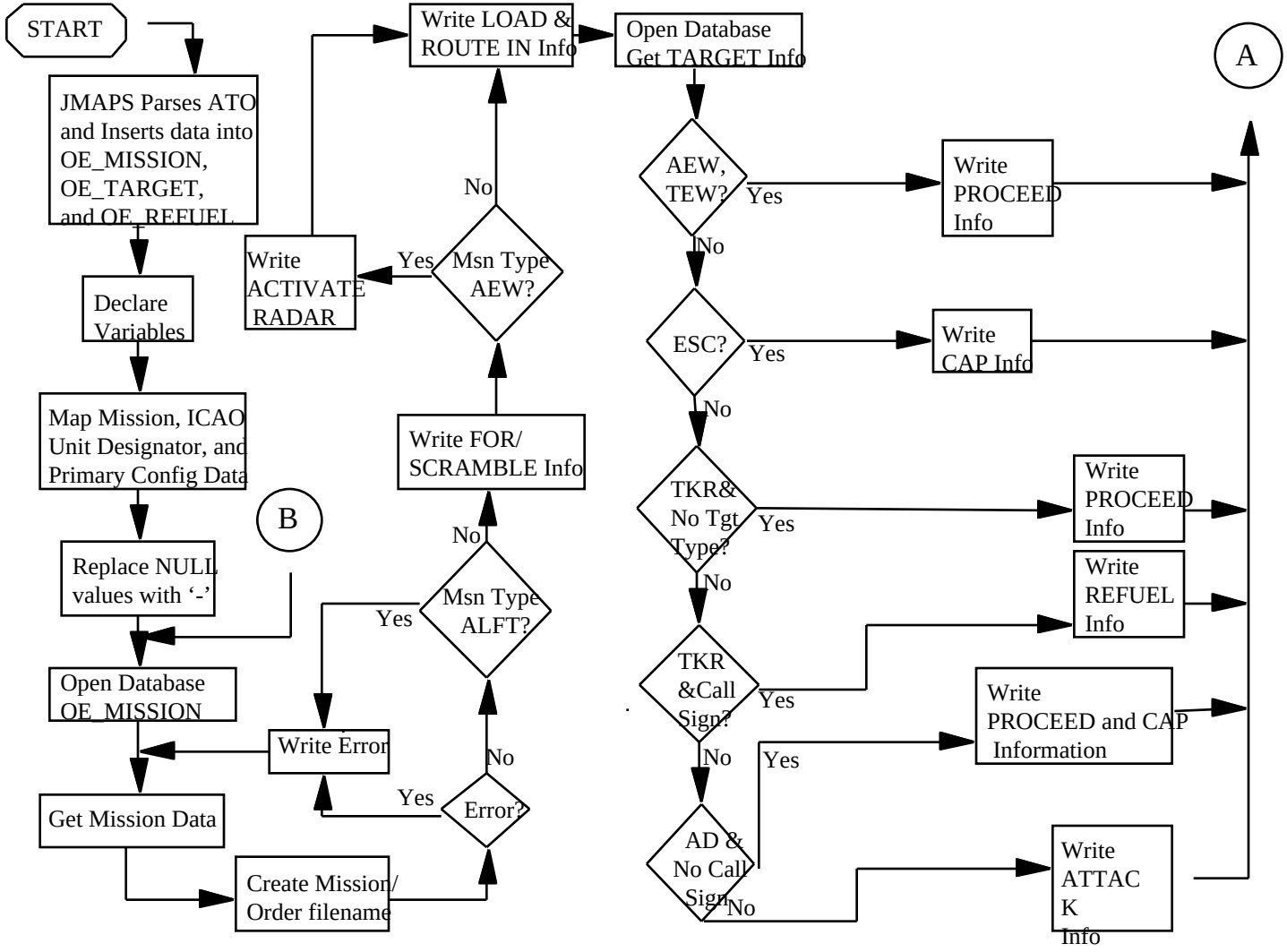


Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (3 of 12)

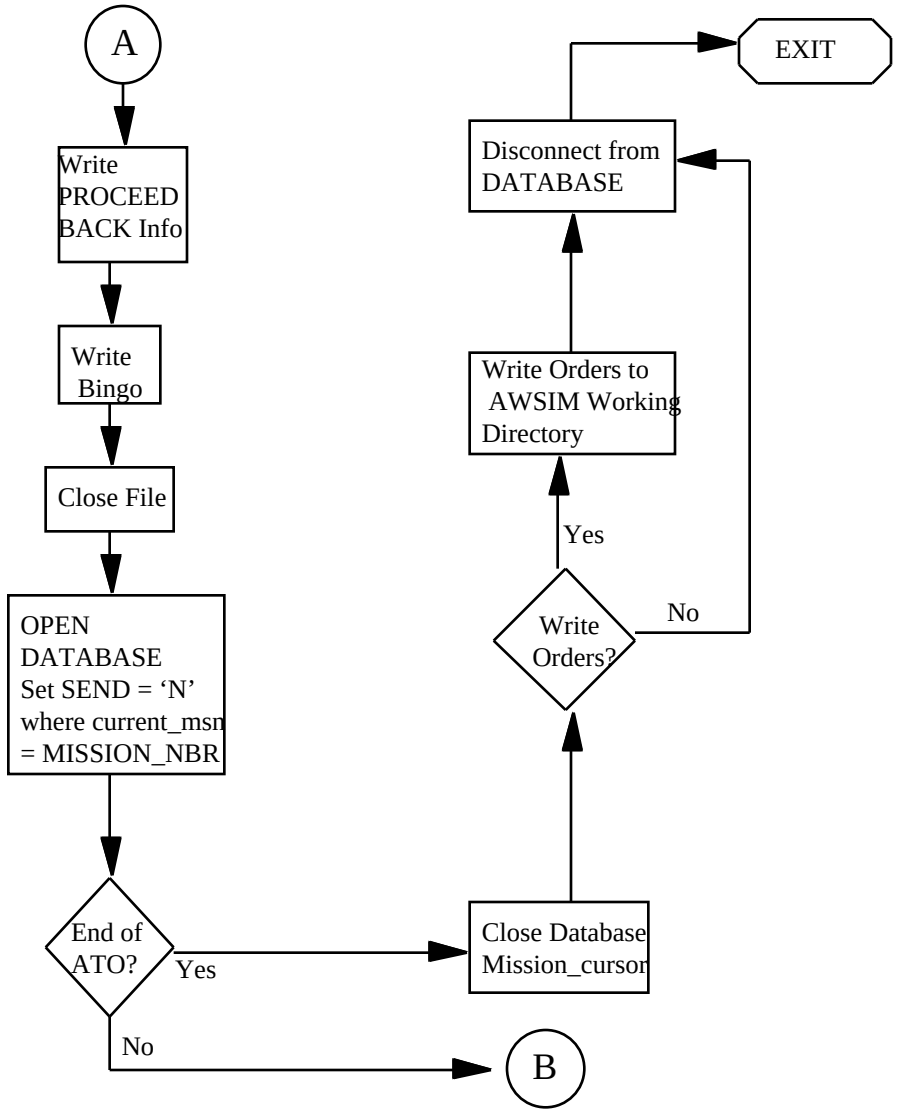
Order Engine/AWSIM



Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (4 of 12)

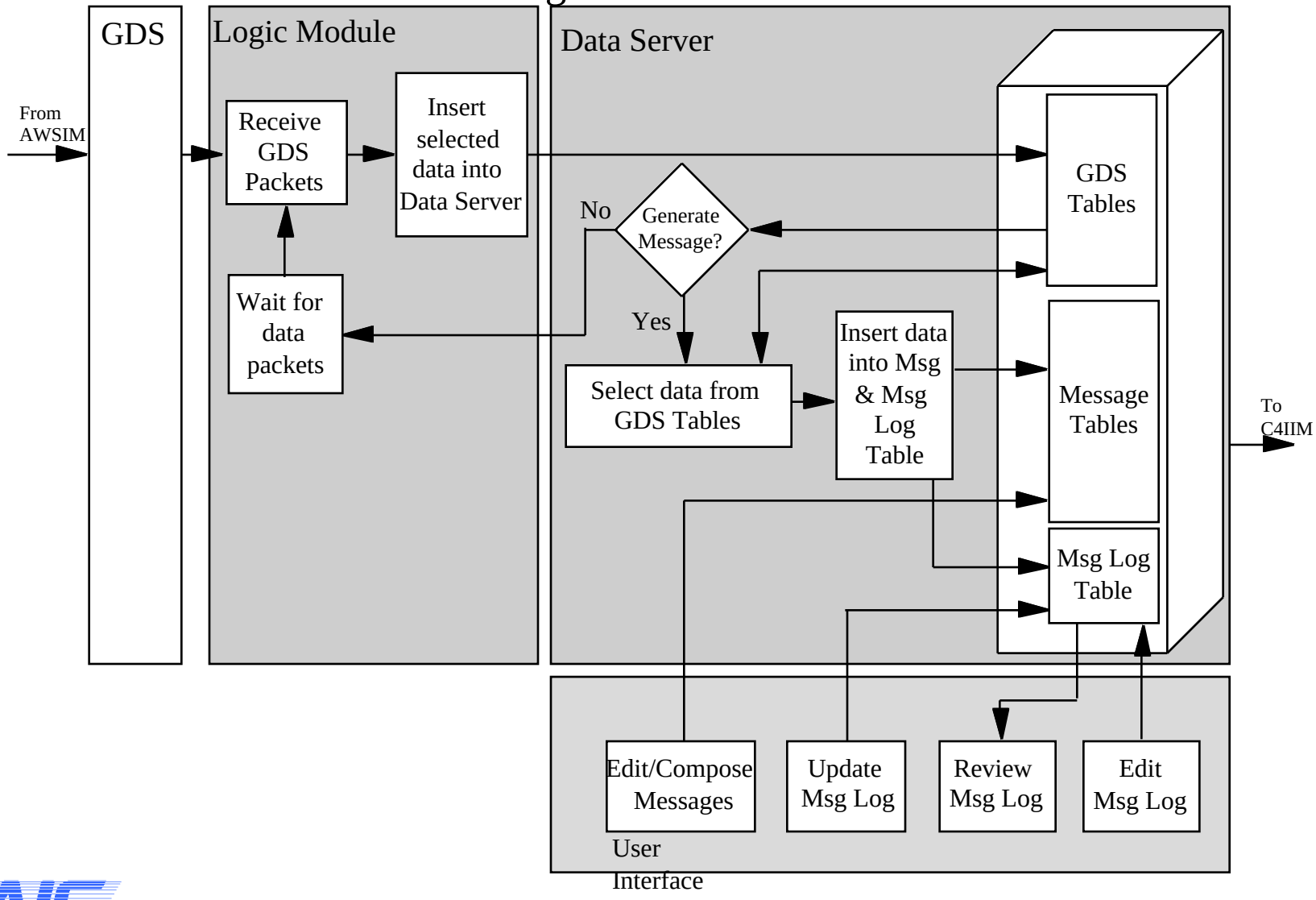


Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (5 of 12)



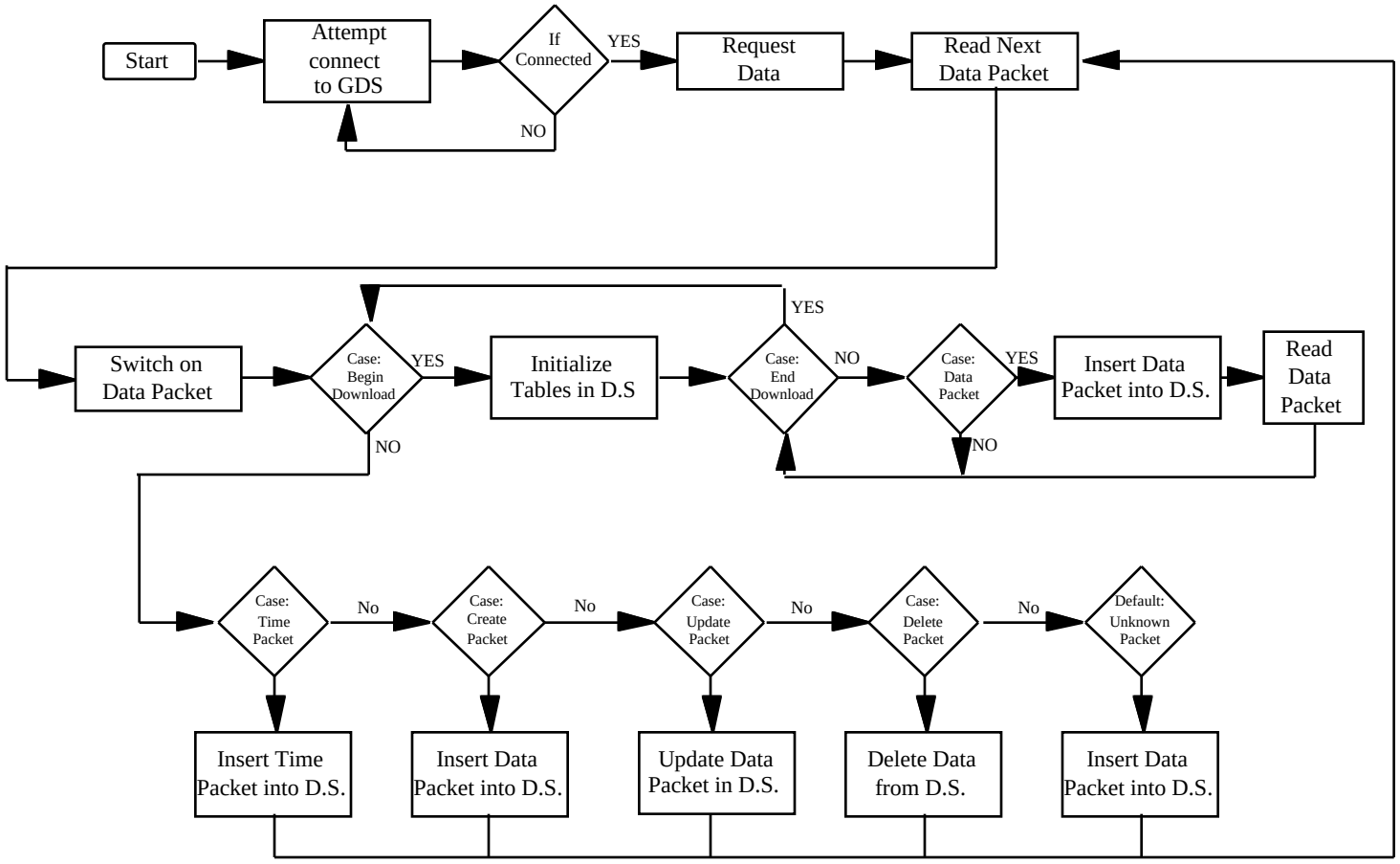
Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (6 of 12)

GDS/Logic Module/Data Server



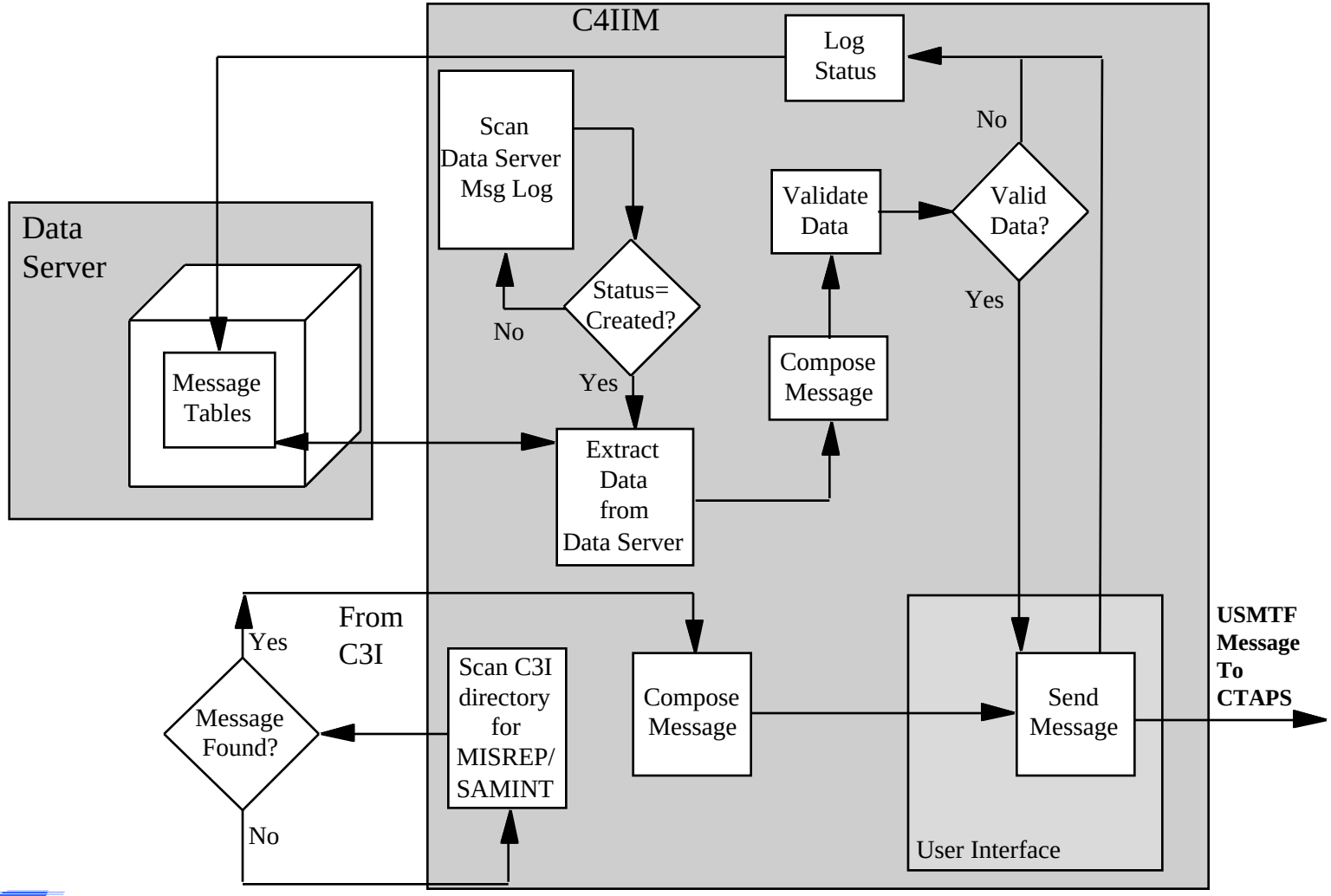
Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (7 of 12)

Logic Module (LM)

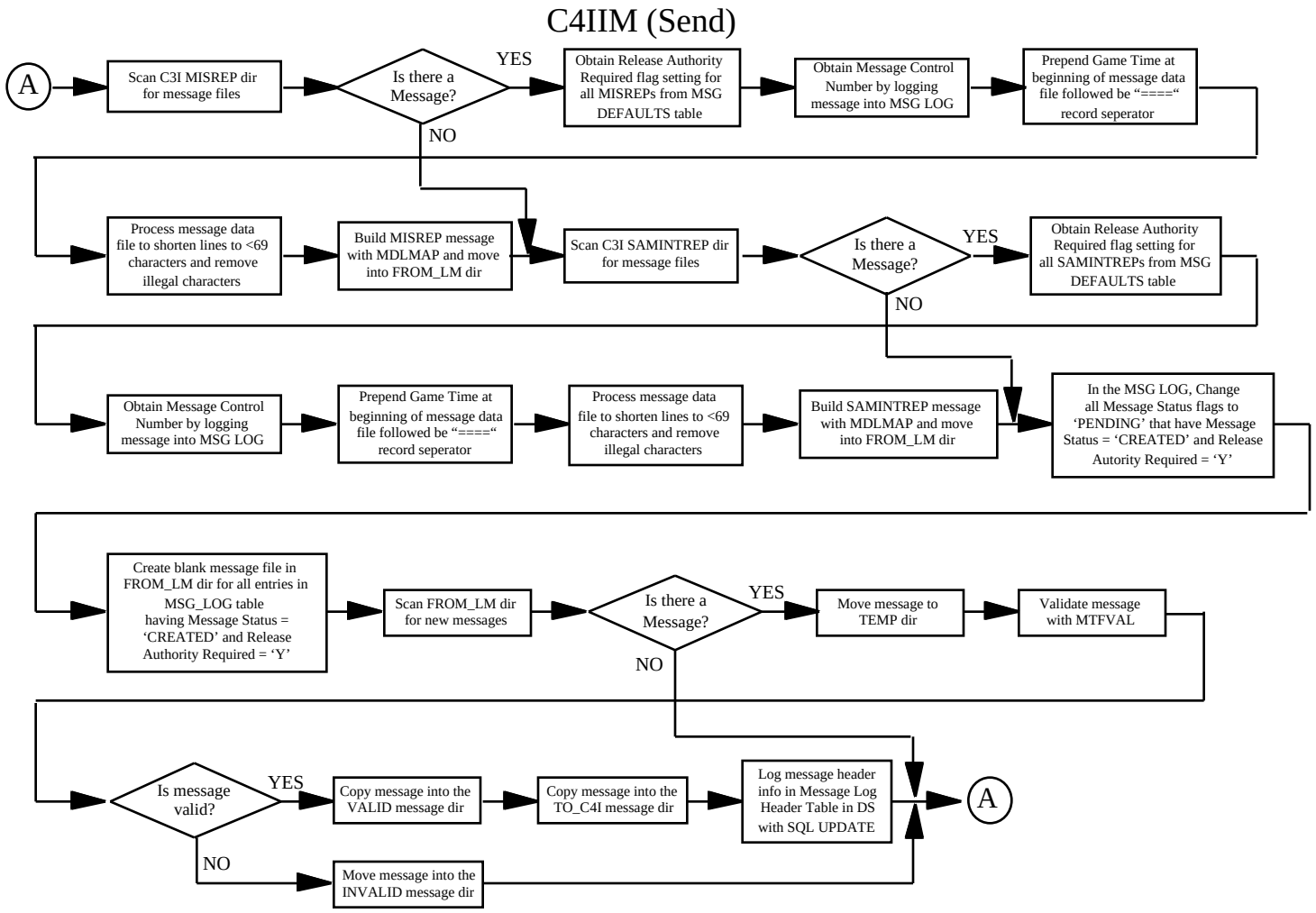


Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (8 of 12)

C4IIM



Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (9 of 12)



CTAPS to AWSIM

CTAPS

* Composes ATO
* Releases ATO to C4IIM (PRW)

C4IIM(PRW)

* Runs daemon that waits for release of ATO from CTAPS
* Receives ATO
* Forwards ATO to working directory for Order Engine(PRW)

ORDER ENGINE(PRW)

* Parses ATO
* Inserts data into Data Server
* Allows user to view/edit missions
* Allows user to write missions/orders to the Air Simulation(AWSIM)

AWSIM

* Accepts missions/orders
* Plays the game

Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (11 of 12)

AWSIM to CTAPS

AWSIM

* Plays the game
* Sends output (game status/mission results) to GDS

GDS

* Accepts data from all models that provide input
* Downloads all data requested by clients (PRW)

LM (PRW)

* Allows userto connect/disconnect to CTAPS/GDS
* Receives data from GDS
* Inserts selected data into the Data Server
* Permits user to
  - Create/Edit USMTF messages
  - Edit message default information (Exercise name, originator)
  - Start/stop transmission of individual messages

Bi-directional Functional String (CTAPS-to-AWSIM/R) Preliminary Data, Information, and C2 Transformations and Flows (12 of 12)

AWSIM to CTAPS cont.

* Permits user to

- Change message interval or event characteristic(nbr of acft) of messages (ABSTAT,TACREP)

DATA SERVER (PRW)

* Stores GDS data for USMTF creation
* Selects USMTF data and inserts it into message tables
* Notifies C4IIM (PRW) that new message data exists.

C4IIM (PRW)

* Creates/Validates USMTF messages
* Updates message log tables in the dataserver (PRW)
* Sends USMTF messages to CTAPS

CTAPS

* Accepts and processes received USMTF messages

SRR Agenda (2 of 4)

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	1145-1200	Break
	1200-1230	MRCI Prototype Functional Strings & RTI Interfaces (PDR Preview)
☛	1230-1245	Draft CTAPS Simulation Object Model (PDR Preview)
	1245-1300	Discussion & Wrap Up
	1300	Adjourn Peer Review Team Session

- The Draft CTAPS SOM will be presented for discussion purposes only at SRR and will not be disseminated with the SRR package due to its preliminary nature.

SRR Agenda (2 of 4)

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SRR Agenda (3 of 4)

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	1345-1400	Summaries of Primary MRCI Experiment System Candidates
	1400-1410	Summaries of Primary MRCI Experiment Communications Links Candidates
	1410-1415	Orientation to OSI Reference Model
	1415-1445	US Army C4I-to-Simulation Requirements
	1445-1505	USAF C4I-to-Simulation Requirements
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SRR Agenda (4 of 4)

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SRR Agenda (4 of 4)

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